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ABSTRACT

This index provides a topical taxonomy of media which have been selected for their relevance in the teaching of materials science and engineering. The index is keyed to a matrix which matches topical and/or class material with six classifications of media: print, 16mm film, super 8 film, slide/tape, videotape, and other (including interactive computer programs, and overhead transparencies). The index also contains the names and addresses of sources, and a list of media by materials classification. (WBC)

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EMMSE
MEDIA
INDEX

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Compiled and Edited
by

Clifford A. Hewitt

and

Herbert A. McKinstry

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The entire scope of EMMSE is under the oversight of the Advisory Committee listed below. The composition of the Committee is such as to facilitate liaison to important segments and institutions within the Materials Science and Engineering community, and to expedite input from the many sources. As such, it represents a mixture of disciplines and agencies: physics, chemistry, metallurgy, ceramics, polymer science; industry; large universities and small colleges; a major society and a federation of societies. It is hoped that most persons interested in this activity will have a sympathetic advocate within the committee.

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ADDENDA TO SOURCE LIST

Buehler
  Buehler, Ltd.
  Advertising Department
  P.O. Box 1459
  Evanston, IL 60204

For source BM see
Bureau of Mines

CORRECTIONS

pp. 64 & 180, Slide/Tape Column

Chemistry of Iron and
Chemistry of Steel (B)

Source should be AIS

FOREWORD

This INDEX is one of the first 'products' of EMMSE (Educational Modules for Materials Science and Engineering) which is a project supported by the National Science Foundation.

The overall goal of EMMSE is the development, evaluation, dissemination, and promotion of innovative instructional material for the teaching of materials science and engineering. The major emphasis is on the preparation, review and testing of print modules which are designed for organization into curricula with individualized as well as traditional teaching methods in mind. As the program matures after a number of years, these modules will be analogous to a collection of building blocks from which custom-made courses in materials science and engineering can be constructed with great flexibility at a number of different levels.

This INDEX provides a carefully ordered topical taxonomy of all kinds of media which have been selected for their relevance as support material in the teaching of materials science and engineering. Some of the media will be closely related to or even integrated with EMMSE's new print modules. The rest will serve as supplementary or enrichment material. Over a period of years, much of the media will be officially reviewed and abstracts of the reviews will be included in future editions of the INDEX, increasing its value to the user. While this is the first published edition of the INDEX, it is anticipated that it will be regularly revised and republished on a biennial basis.

HOW TO USE THE MEDIA INDEX

THE MATRIX

This INDEX is keyed to a MATRIX developed as part of the EMMSE project. The current form of the MATRIX is found on pages v and vi. You will note that the vertical axis of this orthogonal representation is topical and numbered from 1 to 40. The other is made up of classes of materials and is lettered from A to K.

The MATRIX serves several purposes. First, it provides the order of topical entries under the heading "Subject Area" in the INDEX. The numbers of the "Subject Areas" correspond with the numbers on the respective axis of the MATRIX, making for easy identification and location. Second, the letters marking the classes of materials are used to identify units relating specifically to one or another such class. These letters appear in parentheses at the end of the title for each entry. At the back of the INDEX there is a separate section where titles are listed alphabetically according to materials classification as well as various media within each classification.

The MATRIX also offers a quick overview of the concentration or lack of media in any topical and/or class of material area. The number of entries for a specific topic and class of materials is entered in the appropriate block of the MATRIX. No entry, of course, means an absence of support material in that area.

THE INDEX COLUMNS

In addition to the heading labeled Subject Area, the INDEX provides six columns across the page for the listing of media, as follows:

1. Print	Only print media of a modular format are listed. Eventually all entries here, as in most other cases, will have passed through the EMMSE review system. Many of these entries will be print modules produced through the EMMSE program.
2. 16 MM Film	These films are in the familiar reel to reel format. Currently, among the available media, this type was found to predominate.
3. Super 8 Film	Virtually all of these are in silent cassette format accommodated chiefly by the Technicolor projectors. A few have sound tracks.
4. Slide/Tape	Many of these are combinations of the two media, i.e. slides (or filmstrips) with audio tapes. Some units are of one or the other medium only.
5. Video Tape	Some problems of compatiblity may be encountered here. There seems to be a growing preference, however, for the U-matic cassette format. If you do not have this type of equipment, please ask the supplier whether the video tape you wish to use is available in the format you need.

6. Among these are interactive computer programs, overhead transparencies, planned or packaged laboratory experiments, etc.

USING THE INDEX

The INDEX can be used to locate virtually all modular units in any media which relate to the subject area one has selected. The subject area is first located within the MATRIX and the related number noted. If one then turns to that number and subject area in the INDEX, the full panoply of available items in different media is seen simply by reading across and down the page or pages.

Important and useful data are provided for each entry in the INDEX. In addition to the class of material involved, the information includes the length and format of the unit, approximate academic level, terms applicable to its use, and the source from which it may be obtained. The names and addresses of these sources are listed alphabetically in the first appendix of the INDEX. Since EMMSE does not distribute any of the media, users of the INDEX should contact the source directly.

A sample entry together with a complete key to the coding is found on page iv.

As mentioned above, the second appendix contains an alphabetical listing of media by class of material. This is a convenient way of locating an item where the material is of primary consideration or where the title is known to the prospective user.

A REQUEST FOR YOUR PARTICIPATION

As the EMMSE program develops in the future and a review system is in full operation, there will be another section to the INDEX which will list alphabetically all reviewed material with an abstract of the review. The review will contain not only a brief description of the contents but also some evaluation of the unit as to quality and curricular definition. In the interim, between this and the next publication of the INDEX, it is expected that many of the most pertinent entries will be reviewed and that these reviews will appear in the new edition. This should make the INDEX a more effective tool.

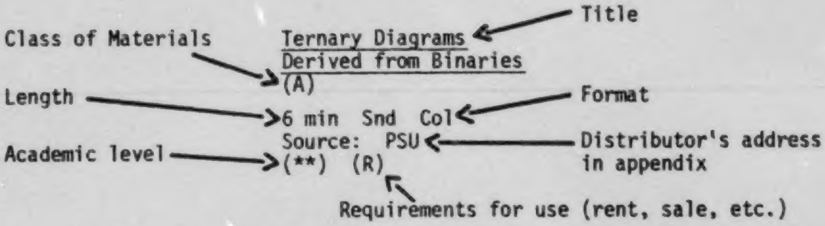
The reviewing of this large number of items is an extremely time consuming process. The EMMSE Advisory Committee feels that it is a task which can be undertaken best as a community effort. It is our hope that users will supply this review data for any entry which is known or subsequently used by them. This service could provide many of the reviews needed for the next edition. For this process a review questionnaire has been attached as the last page of the INDEX.

A second questionnaire is included on which the user may want to indicate suggestions for changes and improvements in the INDEX. This first edition of the EMMSE INDEX should be considered an experimental test volume. Some changes in style, format and content will certainly appear in later editions. Your comments and suggestions are welcome and can be forwarded through the self-addressed prepaid forms provided.

KEY TO INDEX

AT	Audio tape	RP	Rental or purchase
B/W	Black and white	r/r	Reel to reel
Col	Color	SA	Special arrangement
F	Free	Sil	Silent
Fl	Free loan	Snd	Sound
FS	Filmstrip	TC	Technicolor cassette
OT	Overhead transparency	VT	Video tape
P	Purchase	*	Introductory
R	Rental	**	Advanced

SAMPLE ENTRY


Title
Class of Materials
Length
Format
Distributor's address in appendix
Academic level
Requirements for use (rent, sale, etc.)

Ternary Diagrams Derived from Binaries
(A)
6 min Snd Col
Source: PSU
(**) (R)

EMMSE MATRIX

THIS MATRIX PROVIDES A GUIDE TO THE INDEX. THE NUMBERS RUNNING VERTICALLY DOWN THE LEFT SIDE CORRESPOND TO THE NUMBERS AT THE TOP OF THE PAGES IN THE INDEX, INDICATING THE LOCATION OF THE RESPECTIVE SUBJECT AREAS. THE LETTERS ACROSS THE TOP WILL BE FOUND IN PARENTHESES AFTER EACH MEDIA ENTRY, IDENTIFYING THE MATERIALS CLASSIFICATION. THE NUMBERS IN THE BLOCKS OFFER A QUICK OVERVIEW OF THE CONCENTRATION OR LACK OF AVAILABLE MEDIA THROUGHOUT THE INDEX.

Educational
Modules for
Materials
Science and
Engineering

SUBJECT AREA				MATERIALS (COMPOSITION)										
					METALS & ALLOYS									
				ALL SOLIDS IN GENERAL	FERROUS	NON-FERROUS	CERAMICS, incl. cement	POLYMERS	ELECTRONIC MATERIALS	NON-CRYST. SOLIDS	WOOD & PAPER	COMPOSITES	BIOMATERIALS	OTHER
				A	B	C	D	E	F	G	H	I	J	K
BASIC SCIENCES		SOLID STATE PHYSICS	1	19	2	1			15					
		CRYSTAL CHEMISTRY	2	44	2	2		3	4					1
	THERMO-DYNAMICS	PHASE EQUILIBRIUM	3	34	13	10	1							
		THERMOCHEMISTRY	4	23		1		2						
	KINETICS	DIFFUSION	5	8		4	1							
		REACTIONS: MECHANISMS	6	8				1						
CHARACTERIZATION	STRUCTURE	CRYSTAL	7	44	17	14	1	3	2					
		MICRO	8	13	15	16	1	3		1	1			
		DEFECT	9	12	10	10	1		1					
		SURFACES, INTERFACES	10	12	13	25	2		1					
	CHEMICAL COMPOSITION	BULK	11	22	3		1	3						
		TRACE	12	12										
		NON-DESTRUCTIVE TESTING	13	1	2									
		INSTRUMENTATION	14	35	11	8	1	1						

PROCESSING		MIN. PROCESSING	15	4	23	27	1							
		EXTRACTION: HYDRO, PYRO, ELECTRO	16	3	25	30	1							
	PREPARATION	ULTRAPURIFICATION	17			1								
		PARTICULATES	18	3	1		2							
		SINGLE CRYSTALS	19	20	3	6	3	1						
		THIN FILMS	20		5	3		1	5			1		
	FORMING	SOLID: FORGING, SINTERING	21	5	45	32	2	1	1					
		FLUID: CASTING, EXTRUDING, CVD	22	7	29	16	1	8		1		1		
		FINISHING: GRINDING, COATING	23		25	23	5	5	1	1	2	1		
		JOINING	24	3	9	14	3	3		2		3		
PROPERTIES		THERMAL	25	12	3	8	4	7		1				
		MECHANICAL: ELASTIC, PLASTIC, FRACTURE	26	50	59	58	13	40		10	4	8	2	
		ACOUSTIC	27						1					
		OPTICAL	28	12			3	2	3					1
		ELECTRICAL: DIELECTRIC	29	12	7	10	3		58					1
		MAGNETIC	30	2	18	8	1		3					
		CHEMICAL: CORROSION, ADHESION	31	8	29	24	2	9				1		
		NUCLEAR: RADIATION EFFECTS	32	5										
		BIOLOGICAL	33	1	2	1	2	2					5	
		RHEOLOGICAL	34	2							3			
APPLICATIONS		MATERIALS SELECTION	35	10	12	5	3	6		2	3	1		
		DESIGN WITH MATERIALS	36	14	22	12	5	20		3	2	2		
	FUNCTIONS	STRUCTURAL	37	9	7	6	3	4			1	1		
		ELECTRICAL, MAGNETIC, OPTICAL	38	3		4	2		14	1				1
		SURFACE: FRICTION, WEAR, CORROSION	39	2	20	14	1	3						
		OTHER: THERMAL, NUCLEAR, BIOLOGICAL	40	3	2	2	5	4		1	1		5	

SUBJECT AREA 1 - BASIC SCIENCES: SOLID STATE PHYSICS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Strong Materials: Electrons and Waves (A) (Section of Open University Course) Approx. 6 hr module, 104 pp. Source: H&R (*) (P)	Formation, Propagation, and Interaction of Solitons in Non-linear Dispersive Media (A) 25 min Sil B/W Source: BTL (**) (FL) Hydrogen Atom as Viewed by Quantum Mechanics (A) 13 min Snd Col Source: PSU (**) (R) The Structure of Atoms (A) 12 min Snd Col Source: PSU (*) (R) Semi-Conductors: Part I (F) 21 min Snd B/W Source: PSU (**) (R) Semi-Conductors: Part II: (F) 22 min Snd B/W Source: PSU (**) (R)	Equipartition of Energy (A) TC 4 min Sil Col Source: EFL (**) (P) Maxwell Speed Distribution (A) TC 4 min Sil Col Source: EFL (**) (P) Molecular Vibrations--Using Models (A) TC 4 min Sil Source: MLA (**) (P) Molecular Vibrations Using Models (A) TC 4 min Sil Col Source: ACCC (*) (P) Symmetry in Molecules (A) TC, r/r 4 min Sil Col Source: LBF (*) (P) Wave Packets in Periodic Potentials, Part I--Packets in a Perfect Crystal (A) TC, r/r 4 min Sil B/W Source: EDC (**) (P) Wave Packets in Periodic Potentials, Part II--Packets Incident on a Perfect Crystal (A) TC, r/r 4 min Sil B/W Source: EDC (**) (P) Wave Packets in Periodic Potentials, Part III--Scattering from Impurities (A) TC, r/r 3 min Sil B/W Source: EDC (**) (P) Ferromagnetic Domain Wall Motion (B) TC, r/r 4 min Sil Col Source: SET Q (**) (P)

1

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Binding in Atoms, Molecules and Crystals (I) (A) Wave Mechanics Schrodinger Equation Hydrogen Atom and Hydrogen-like Atoms 21 Slds 52 min tape Source: Ruoff & PC (**) (P)		Laboratory Experiments in X-Ray Crystallography (A) 21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results. Source: McGraw Hill (**) (P)
Binding in Atoms, Molecules and Crystals (II) (A) Bonding of Atoms in Molecules and Condensed Phases Covalent Bonding Binding in Metals Secondary Bonds Polarization and Magnetization 22 Slds 39 min tape Source: Ruoff & PC (**) (P)		Solid State Structure and Reactions Series (A) 12 OT No tape Source: ASM (**) (P)
Electrons in Condensed Phases (I) (A) Electron Gas Quantized Electron Gas Electrons in a Periodic Potential Brillouin Zones Conductivity 24 Slds 49 min tape Source: Ruoff & PC (**) (P)		
Superconductivity: (A) Superconducting State and Fundamental Concepts Collective De Broglie Wave Magnetic Flux Quantization Type I vs Type II Superconductors Fluxoid Pinning 31 Slds 37 min tape Source: Ruoff & PC (**) (P)		
Magnetism (B,C) Diamagnetism, Paramagnetism Ferromagnetism, Antiferromagnetism Ferrimagnetism Domains and Magnetism According to Domain Theory Magnetic Bubbles 44 Slds 54 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 1 - BASIC SCIENCES: SOLID STATE PHYSICS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
		The Formation of a Barrier in a P-N Crystal (F) TC 2 min Sil Col Source: SETCO (**) (P)
		The Formation of N-Type Crystals (F) TC 2 min Sil Col Source: SETCO (**) (P)
		The Formation of P-Type Crystals (F) TC 2 min Sil Col Source: SETCO (**) (P)
		Generation of Charge Carriers (F) TC 1 min Sil Col Source: SETCO (**) (P)
		Light and Electrons (F) TC 4 min Sil B/W Source: EBEC (*) (P)
		The P-N-P Crystal (F) TC 2 min Sil Col Source: SETCO (**) (P)
		Recombination of Charge Carriers (F) TC 1 min Sil Col Source: SETCO (**) (P)
		Rectification of Crystal Diodes (F) TC 2 min Sil Col Source: SETCO (**) (P)
		The Transistor (F) TC 2 min Sil Col Source: SETCO (*) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Electrons in Condensed Phases (II): Intrinsic Semiconductors (F) Extrinsic Semiconductors (F) P-N Junction (F) Junction Transistor (F) Lasers (A) 20 Slds 40 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 2 - BASIC SCIENCES: CRYSTAL CHEMISTRY

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Basic Principles in Chemistry-Chemical Bonding (A) 1. Bonding Between Atoms of the Same Element: Metals and the Metallic Bond 2. Bonding Between Atoms of the Same Element: Non-Metals and the Covalent Bond 3. Bonding Between Atoms of Different Elements: Metals and Non-Metals--The Ionic Bond 4. Bonding Between Atoms of Different Elements--Non-Metals and Covalent Compounds 5. Electronegativity, Polar Covalent Bonds, Polar Molecules, Hydrogen Bonds, and Coordinate Covalent Bonds Approx 2 hr each unit Slds or FS with AT and Workbook Source: CSC (*) (P) Crystallography: (A) Book 1. Packing: The Crystal as an Assembly of Spheres Book 2. Unit Cells and Space Lattices Book 3. Miller Indices: Representation of Planes and Directions Book 4. The Seven Crystal Systems Book 5. The Fourteen Bravais Lattices Book 6. Introduction to X-Ray Diffraction Programmed instruction books with hands-on materials Sold as a package Approx 3 credit course Source: ACC (*) (P)	Bragg Reflection (A) 10 min Snd B/W Source: PSU (**) (R) Chemical Families (A) 22 min Snd Col Source: PSU (*) (R) Considering Crystals (A) 16 min Snd Col Source: PSU (*) (R) Crystals (A) 24 min Snd Col Source: PSU (**) (R) Crystals--An Introduction (A) 25 min Snd Col Source: BTL (*) (FL) Crystals and Their Structures (A) 22 min Snd B/W Source: PSU (**) (R) Symmetry (A) 10 min Snd Col Source: PSU (*) (R) Vanadium - A Transition Element (A) 22 min Snd Col Source: PSU (**) (R) Vibration of Molecules (A) 11 min Snd B/W Source: PSU (**) (R)	Bubble Model of a Crystal--Deformation and Dislocation (A) TC 3 min Sil Col Source: EFL (*) (P) Bubble Model of a Crystal--Structure and Boundaries (A) TC 2 min Sil Col Source: EFL (*) (P) Comparison of (Various) Crystal Structures (A) TC 4 min Sil Col Source: SETCO (*) (P) Crystals and X-Ray Diffraction (A) TC 4 min Sil B/W Source: MLA (**) (P) Diffraction of X-Rays by a Crystal (A) TC 4 min Sil Col Source: EBEC (**) (P) The F. C. C. Crystal Structure (A) TC min Sil Col Source: SETCO (*) (P) Molecular Motion in Condensed Phases (A) TC 4 min Sil Col Source: MLA (**) (P) Properties of a Covalently Bonded Molecule (A) TC 4 min Sil Col Source: EBEC (**) (P) Properties of an Ionic Compound (A) TC 4 min Sil Col Source: EBEC (**) (P)

MEDIA

SLIDE/TAPE

Atomic Arrangements (I) (A)
Crystals and Lattices
Crystallographic Directions
Planes
Packing of Atoms
33 Slds 53 min tape
Source: Ruoff & PC
(*) (P)

Atomic Arrangements (II) (A)
Symmetry and Properties
Imperfections in Crystals
24 Slds 42 min tape
Source: Ruoff & PC
(*) (P)

Atomic Arrangements (III) (A)
Diffraction by Crystals
13 Slds 33 min tape
Source: Ruoff & PC
(*) (P)

Atomic Arrangements Series (A)
6 Slds No tape
Source: ASM
(**) (P)

Binding in Atoms, Molecules and Crystals (II)
Bonding of Atoms in Molecules and Condensed Phases (A)
Covalent Bonding (A)
Binding in Metals (B,C)
Secondary Bonds (A)
Polarization and Magnetization (A)
22 Slds 39 min tape
Source: Ruoff & PC
(**) (P)

Crystals of Linear Macromolecules (A)
8 AT's (running time-7.6 hours)
252 page manual (Approx. 5 weeks study time)
Source: ACS
(**) (P)

Crystal Structure (E)
11 Slds No tape Col
Source: SPE
(**) (FL)

VIDEO TAPE

Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's)(A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Atomic Bonding (Lesson 3) Introduction to Materials Science (set of 16 VT's)(A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Atomic Coordination (Lesson 4) Introduction to Materials Science (set of 16 VT's) (A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Crystal Structure I (Lesson 5) Introduction to Materials Science (set of 16 VT's) (A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Crystal Structure II (Lesson 6) Introduction to Materials Science (set of 16 VT's) (A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Internal Structure (Lesson 1) Introduction to Materials Science (set of 16 VT's) (A)
Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

OTHER

Crystallography: (A)

Book 1.	Packing: The Crystal as an Assembly of Spheres
Book 2.	Unit Cells and Space Lattices
Book 3.	Miller Indices: Representation of Planes and Directions
Book 4.	The Seven Crystal Systems
Book 5.	The Fourteen Bravais Lattices
Book 6.	Introduction to X-Ray Diffraction

Hands-on materials with programmed instruction books
Sold as a package
Approx 3 credits
Source: ACC
(*) (P)

Laboratory Experiments in X-Ray Crystallography (A)
21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results.
Source: McGraw Hill
(**) (P)

Solid State Structure and Reactions Series (A)
12 OT No tape
Source: ASM
(**) (P)

SUBJECT AREA 2 - BASIC SCIENCES: CRYSTAL CHEMISTRY

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Electronic Materials (F) (Volume 4 of a five-part course on Materials Technology) Workbook and VTs 8 sessions, approx 2 weeks study Source: SL (*) (SA)		Solutions (A) TC 3 min Sil Col Source: SUTH (*) (P)
		Structure of a Covalent Molecule CCl4 (A) TC 4 min Sil Col Source: EBEC (**) (P)
		Structure of an Ionic Crystal (A) TC 4 min Sil Col Source: EBEC (**) (P)
		Sulphur Crystals (A) TC 4 min Sil Col Source: LONG (*) (P)
		Symmetry in Molecules (A) TC, r/r 4 min Sil Col Source: LBF (*) (P)
		Crystal Structure of Metals (B,C) TC 5 min Sil Col Source: LBF (*) (P)
		Crystal Structures of Metals (B,C) TC r/r 4 min Sil Col Source: Wiley (*) (P)
		The Germanium Crystal Lattice (F) TC 1 min Sil Col Source: SETCO (*) (P)
		The Germanium Unit Cell (F) TC 3 min Sil Col Source: SETCO (*) (P)
		Le Chatelier's Principle (O) r/r 4 min Sil Col Source: SET U (**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Polymers (II): (E) Crystallinity in Polymers 15 Slds 25 min tape Source: Ruoff & PC (**) (P) X-Ray Analysis (E) 34 Slds No tape Source: SPE (**) (FL)	Electronic Materials (Volume 4 of a five-part course on Materials Technology) (F) VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA) Bonding and the Structure of Solids (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 3 - BASIC SCIENCES: THERMODYNAMICS (PHASE EQUILIBRIUM)

MEDIA

PRINT

Phase Diagrams and Microstructure (A)

Approx 6 hr module, 56 pp
Source: H&R
(*) (P)

Phase Equilibria (Volume 1 of a five-part course on Materials Technology) (A)

Workbook and VTs, 9 sessions, approx 2-3 weeks study
Source: SL
(*) (SA)

Alloy Design, Using Second Phases (B,C)

Research review module, 24 pp
Source: INCO
(**) (F)

Isothermal Transformation Diagrams of Nickel Alloy S Steels (B,C)

Research review module, 44 pp
Source: INCO
(**) (F)

Strengthening Mechanisms in Nickel-Base Superalloys (B,C)

Research review module, 28 pp
Source: INCO
(**) (F)

16 mm FILM

Crystal Growth Morphologies (A)

17 min Sil Col
Source: BTL
(**) (FL)

Diffusion of Liquids (A)

11 1/2 min Snd B/W
Source: PSU-EC
(

Equilibrium (A)

24 min Snd Col
Source: PSU
(**) (R)

Free Energy Curves and Binary Phase Diagrams (A)

10 min Snd Col
Source: PSU
(*) (R)

Gibbs Free Energy: Enthalpy and Entropy (A)

11 min Snd Col
Source: PSU
(*) (R)

Isothermal Sections with Simple Ternary Eutectic (A)

7 min Snd Col
Source: PSU
(**) (R)

Isothermal Sections with Solid Solutions (A)

7 min Snd Col
Source: PSU
(**) (R)

Reading Ternary Phase Diagrams (A)

8 min Snd Col
Source: PSU
(**) (R)

Temperature and Matter (A)

15 min Snd Col
Source: PSU
(*) (R)

Ternary Diagrams Derived from Binaries (A)

6 min Snd Col
Source: PSU
(**) (R)

SUPER 8 FILM

Gibbs Free Energy: Part I Enthalpy (A)

TC 6 min Snd Col
Source: PSU
(*) (R)

Gibbs Free Energy: Part II Entropy (A)

TC 6 min Snd Col
Source: PSU
(*) (R)

Liquid/Gas Equilibrium (A)

TC 4 min Sil B/W
Source: LONG
(*) (P)

Melting Points (A)

r/r 3 min Sil Col
Source: AIM
(*) (P)

Melting Temperature of a Pure Substance (A)

TC,r/r 4 min Sil Col
Source: EFL
(*) (P)

Phase Change (A)

TC 4 min Sil Col
Source: EBEC
(*) (P)

Phase Demonstration (A)

TC, r/r 1 min Sil Col
Source: SET U
(*) (P)

Solid/Liquid Equilibrium (A)

TC 4 min Sil B/W
Source: LONG
(*) (P)

Solution, Evaporation and Crystallization (A)

TC, r/r 3 min Sil Col
Source: SET U
(*) (P)

Triple Point of Water (A)

r/r 4 min Sil Col
Source: SET K
(*) (P)

MEDIA

SLIDE/TAPE

Phase Diagrams (I):
Binary Systems (A)
Nonequilibrium Transformations (A)
Age Precipitation Hardening (C)
Fe-C System (B)

36 Slds 53 min tape
Source: Ruoff & PC
(*) (P)

Phase Diagrams (II):
Segregation in Binary Alloys During Solidification (A)

5 Slds 10 min tape
Source: Ruoff & PC
(**) (P)

Strengthening Mechanisms: (I) (A)
Degree and Limits of Strength
Weakness of Bulk Materials
Strengthening Concepts
Solute Strengthening
Strain Hardening
Strengthening by Grain Boundaries

44 Slds 57 min tape
Source: Ruoff & PC
(*) (P)

Strengthening Mechanisms (II)
Strengthening at High Temperatures (A)

16 Slds 37 min tape
Source: Ruoff & PC
(**) (P)

The Formation of Ferromagnetic Domains (B)

132 Frms FS 45 min Col
2 33 1/3 rpm discs
Source: BTL
(**) (FL)

Heat Treatment Series (B,C)

9 Slds No tape
Source: ASM
(**) (P)

VIDEO TAPE

Multiphase Materials: Phase Diagrams (Lesson 14) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Structure, Bonding, and the Periodic Table (An Open University Course) (A)

11 VT's each 25 min Snd B/W
3/4" Cassette
Study book
Source: H&R
(*) (RP)

Thermodynamics (Part I) (A Two-Part Review Course) (A)

20 VT's each 1 hour Snd B/W
3/4" Cassette
71 page study book
Source: GSI
(**) (RP)

Thermodynamics (Part II) (A Two-Part Review Course) (A)

20 VT's each 1 hour Snd B/W
3/4" Cassette
71 page study book
Source: GSI
(**) (RP)

The Iron-Carbon System (Lesson 15) Introduction to Materials Science (set of 16 VT's) (B)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Phase Equilibria (Volume 1 of a five-part course on Materials Technology (A)

VT's and workbook
9 sessions, approx. 2-3 week's study
Source: SL
(*) (SA)

OTHER

Computer Calculations of Binary Phase Diagrams (A)
Part I Case of Quasi-Regular Solutions
Part II General Case

Interactive computer program
Source: CL
(*) (SA)

Computer Calculations of Multi-Component Phase Diagrams (A)

Interactive computer program
Source: CL
(**) (SA)

Solid State Structure and Reactions Series (A)

12 OT No tape
Source: ASM
(**) (P)

Equilibrium Phase Diagrams (A lab experiment) (C)

Objective: To determine a eutectic phase diagram by cooling curves.

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

SUBJECT AREA 3 - BASIC SCIENCES: THERMODYNAMICS (PHASE EQUILIBRIUM)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Ternary Phase Diagrams (A) 7 min Snd Col Source: AEC (**) (FL)	Phase Diagram for Bi-Cd Alloy (C) TC, r/r 4 min Sil Col Source: Wiley (**) (P)
	Elements of Hardening (B) 15 min Snd B/W Source: PSU (**) (R)	Phase Diagram of an Alloy (C) TC 4 min Sil Col Source: LBF (**) (P)
	Ferromagnetic Domains: Part I Magnetism and Domains Part II How Domains are Formed (B) 22 min Snd Col Source: BTL (**) (FL)	
	Formation of Ferromagnetic Domains (B) 40 min Snd Col Source: BTL (**) (FL)	
	Martenistic Transformation of Nickel-Chromium-Steel (B) 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Metal Crystals (B,C) 35 min Sil B/W Source: PSU (*) (R)	
	Metal Crystals in Action (B,C) 30 min Snd Col Source: ASM (*) (R)	
	Transformation of Tin (C) 9 min Snd B/W Source: PSU (**) (R)	
	Crystalline Transformation (D) 4 min Sil Col Source: PSU-EC (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Making Alloys-The Tricks of the Trade (Section of Open University Course) (B,C) 20 min AT cassette Tape only Source: H&R (*) (P)	The Anatomy of Equilibrium Diagrams (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P) To Crystallize or not to Crystallize? (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 4 - BASIC SCIENCES: THERMODYNAMICS (THERMOCHEMISTRY)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Molecular Theory of Matter (A) 10 min Snd Col Source: PSU (*) (R) Vibration of Molecules (A) 11 min Snd B/W Source: PSU (**) (R) Allotropic Transformation of Cobalt and Co-Ni Alloys (C) 15 min Snd Col Source: CIC (**) (FL) Physical Chemistry of Polymers (E) 22 min Snd Col Source: BTL (**) (FL)	Equipartition of Energy (A) TC 4 min Sil Col Source: EFL (**) (P) Maxwell Speed Distribution (A) TC 4 min Sil Col Source: EFL (**) (P) Model of the Kinetic-Molecular Concept (A) TC, r/r 4 min Sil Col Source: Wiley (*) (P) Molecular Motion in Condensed Phases (A) TC 4 min Sil Col Source: MLA (**) (P) Molecular Vibrations--Using Models (A) TC 4 min Sil Source: MLA (**) (P) Molecular Vibrations Using Models (A) TC 4 min Sil Col Source: ACCC (*) (P) Phase Change (A) TC 4 min Sil Col Source: EBEC (*) (P) Properties of Gas (A) TC 4 min Sil Col Source: EFL (*) (P) Solid, Liquid, Gas--Part I (A) TC, r/r 4 min Sil Col Source: BFA (*) (P) Solid, Liquid, Gas--Part II (A) TC, r/r 4 min Sil Col Source: BFA (*) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Equilibrium and Kinetics (I) (A) Atom Motion and Temperature Kinetics in an Ideal Gas Internal Energy Randomness and Entropy Equilibrium in Chemical Systems 21 Slds 48 min tape Source: Ruoff & PC (*) (P)	Structure, Bonding, and the Periodic Table (An Open University Course) (A) 11 VT's each 25 min Snd B/W 3/4" Cassette Study book Source: H&R (*) (RP)	
Equilibrium and Kinetics (II) (A) Barometric Formula Atom Vibrations 20 Slds 45 min tape Source: Ruoff & PC (*) (P)	Thermodynamics (Part I) (A Two-Part Review Course) (A) 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	
The Fabulous Necklace (E) 88 Slds Col 18 min tape Snd Source: U of A (*) (FL)	Thermodynamics (Part II) (A Two-Part Review Course) (A) 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	

SUBJECT AREA 4 - BASIC SCIENCES: THERMODYNAMICS (THERMOCHEMISTRY)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
		Thermal Expansion of Gases (A) TC, r/r 4 min Sil Col Source: EFL (*) (P) Thermal Expansion of Liquids (A) TC, r/r 4 min Sil Col Source: EFL (*) (P) Thermal Expansion of Solids (A) TC, r/r 4 min Sil Col Source: EFL (*) (P) Vapor Pressure and Boiling (A) TC 3 min Sil Col Source: BFA (*) (P) Vapor Pressure and Temperature (A) TC 4 min Sil Col Source: BFA (*) (P) Vapor Pressure of a Liquid (A) TC, r/r 4 min Sil Col Source: LBF (*) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER

SUBJECT AREA 5 - BASIC SCIENCES: KINETICS (DIFFUSION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Phase Equilibria (A) (Volume I of a five-part course on Materials Technology) Workbook and VT's 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)	Nuclear Radiations: Uses in Industry (A) 15 min Snd B/W Source: PSU (*) (R) Solutions (A) 16 min Snd Col Source: PSU (*) (R) Allotropic Transformation of Cobalt and Co-Ni Alloys (C) 15 min Snd Col Source: CIC (**) (FL) Diffusion on Palladium Surfaces Under Ion Bombardment (C) 4 min Sil B/W Source: PSU-EC (**) (R) Dislocation Movements (C) 9 min Sil B/W Source: PSU-EC (**) (R)	Diffusion (A) TC 4 min Sil Col Source: EFL (**) (P) Diffusion, Part I (A) TC 3 min Sil B/W Source: BTL (**) (P) Diffusion, Part II (A) TC 4 min Sil B/W Source: BTL (**) (P) Diffusion on Palladium-Surfaces During Simultaneous Ion-Irradiation (C,D) r/r 4 min Sil B/W Source: IWF (**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Equilibrium and Kinetics (I) (A) Kinetics in an Ideal Gas 21 Slds 48 min tape Source: Ruoff & PC (*) (P) Equilibrium and Kinetics (III) (A) Special Cases of Diffusion Applications of Diffusion Theory Nucleation 21 Slds 59 min tape Source: Ruoff & PC (**) (P)	Phase Equilibria (Volume 1 of a five-part course on Materials Technology (A) VT's and workbook 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)	

SUBJECT AREA 6 - BASIC SCIENCES: KINETICS (REACTIONS: MECHANISMS)

MEDIA		
PRINT	16 mm FILM	SUPER [illegible] FILM
Phase Diagrams and Microstructure (A) (Section of Open University Course) Approx. 6 hr module, 56 pp. Source: H&R (*) (P)	Introduction to Reaction Kinetics (A) 13 min Snd Col Source: PSU (**) (R)	Properties of a Covalently Bonded Molecule (A) TC 4 min Sil Col Source: EBEC (**) (P) Properties of an Ionic Compound (A) TC 4 min Sil Col Source: EBEC (**) (P) Solutions (A) TC 3 min Sil Col Source: SUTH (*) (P) Triple Point of Water (A) r/r 4 min Sil Col Source: SET K (*) (P) Addition Polymerization (E) TC 3 min Sil Col Source: EBEC (**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Equilibrium and Kinetics (II) (A) Kinetics of Reactions Diffusion 20 Slds 45 min tape Source: Ruoff & PC (*) (P)	Frustrated Reactions (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Architecture of Solids (Section of Open University Course) (A) Approx. 6 hr module, 98 pp. Source: H&R (*) (P) Basic Principles in Chemistry-Atomic Structure: (A) 1. Electron Configuration and Orbital Diagrams 2. Atomic Structure and Periodic Chart 3. Electrical Forces Within Atoms 4. Classification of the Elements: Metals; Non-Metals; Metalloids Approx. 2 hr each unit Slds or FS with AT and workbook Source: CSC (*) (P) Crystallography: (A) Book 1. Packing: The Crystal as an Assembly of Spheres Book 2. Unit Cells and Space Lattices Book 3. Miller Indices: Representation of Planes and Directions Book 4. The Seven Crystal Systems Book 5. The Fourteen Bravais Lattices Book 6. Introduction to X-Ray Diffraction Programmed instruction books with hands-on materials Sold as a package Approx 3 credit course Source: ACC (*) (P) Crystals of Linear Macromolecules (A) 252 page manual (Approx 5 weeks study time) 8 ATs (running time-7.6 hrs) Source: ACS (**) (P)	Automated X-Ray Diffractometry (A) 17 min Snd Col Source: BTL (**) (FL) Bubble Model of a Metal (A) 15 min Snd Col Source: Purdue (*) (R) Crystals (A) 24 min Snd Col Source: PSU (**) (R) Crystals--An Introduction (A) 25 min Snd Col Source: BTL (*) (FL) Crystals and Their Structures (A) 22 min Snd B/W Source: PSU (**) (R) Study of Crystals (A) 18 min Snd Col Source: PSU (**) (R) Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A) 17 min Snd Col Source: AEC (**) (FL) Symmetry (A) 10 min Snd Col Source: PSU (*) (R) The Ultimate Structure (A) 25 min Snd B/W Source: PEI (**) (FL) X-Ray Crystallography (A) 21 min Snd Col Source: PSU (**) (R)	Bubble Model of a Crystal--Deformation and Dislocation (A) TC 3 min Sil Col Source: EFL (*) (P) Bubble Model of a Crystal--Structure and Boundaries (A) TC 2 min Sil Col Source: EFL (*) (P) Comparison of (Various) Crystal Structures (A) TC 4 min Sil Col Source: SETCO (*) (P) Crystals and X-Ray Diffraction (A) TC 4 min Sil B/W Source: MLA (**) (P) Diffraction of X-Rays by a Crystal (A) TC 4 min Sil Col Source: EBEC (**) (P) The F. C. C. Crystal Structure (A) TC 4 min Sil Col Source: SETCO (*) (P) Molecular Motion in Condensed Phases (A) TC 4 min Sil Col Source: MLA (**) (P) Structure of a Covalent Molecule CCl4 (A) TC 4 min Sil Col Source: EBEC (**) (P) Structure of an Ionic Crystal (A) TC 4 min Sil Col Source: EBEC (**) (P)

MEDIA

SLIDE/TAPE

Atomic Arrangements (I) (A)
Crystals and Lattices
Crystallographic Directions
Planes
Packing of Atoms

33 Slds 53 min tape
Source: Ruoff & PC
(*) (P)

Atomic Arrangements (III) (A)
Diffraction by Crystals

13 Slds 33 min tape
Source: Ruoff & PC
(*) (P)

Atomic Arrangements Series (A)

6 Slds No tape
Source: ASM
(**) (P)

Basic Principles in Chemistry-Atomic Structure: (A)
1. Electron Configuration and Orbital Diagrams
2. Atomic Structure and the Periodic Chart
3. Electrical Forces Within Atoms
4. Classification of the Elements: Metals; Non-Metals; Metalloids

Slds or FS with AT and workbook
Approx. 2 hour each unit
Source: CSC
(*) (P)

Binding in Atoms, Molecules and Crystals (I) (A)
Hydrogen Atom and Hydrogen-like Atoms

21 Slds 52 min tape
Source: Ruoff & PC
(**) (P)

Crystals of Linear Macromolecules (A)

8 AT's (running time-7.6 hours)
252 page manual (Approx. 5 weeks study time)
Source: ACS
(**) (P)

VIDEO TAPE

Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Atomic Bonding (Lesson 3) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Crystal Structure I (Lesson 5) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassett
Source: UWEX
(*) (P)

Crystal Structure II (Lesson 6) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Introduction to Engineering Materials (A Course) (A)

23 VTs each 1 hour Snd B/W
3/4" Cassette
Source: GSI
(*) (RP)

Multiphase Materials: Phase Diagrams (Lesson 14) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

The Iron-Carbon System (Lesson 15) Introduction to Materials Science (set of 16 VT's) (B)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

OTHER

Crystallography: (A)
Book 1. Packing: The Crystal as an Assembly of Spheres
Book 2. Unit Cells and Space Lattices
Book 3. Miller Indices: Representation of Planes and Directions
Book 4. The Seven Crystal Systems
Book 5. The Fourteen Bravais Lattices
Book 6. Introduction to X-Ray Diffraction

Hands-on materials with programmed instruction books
Sold as a package
Approx 3 credits
Source: ACC
(*) (P)

Crystal Structure of Metals (A lab experiment) (B,C)

Objective: To study the atomic arrangements in BCC, FCC, and HCP crystals with the aid of hard-sphere models.

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

Laboratory Experiments in X-Ray Crystallography (A)

21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results.
Source: McGraw Hill
(**) (P)

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Phase Equilibria (A) (Volume 1 of a five-part course on Materials Technology) Workbook and VTs 9 sessions, approx 2-3 weeks study Source: SL (*) (SA)	X-Ray Diffraction (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)	Crystal Structure of Metals (B,C) TC 5 min Sil Col Source: LBF (*) (P)
Strong Materials: Electrons and Waves (A) (Section of Open University Course) Approx 6 hr module, 104 pp Source: H&R (*) ((P)	X-Ray Spectroscopy--The Inside Story (A) 26 min Snd Col Source: NASA (**) (FL)	Crystal Structures of Metals (B,C) TC, r/r 4 min Sil Col Source: Wiley (*) (P)
Basic Metallurgy (B,C) (A programmed technical mini-course) Approx one weeks study, 260 pp Source: ASM (*) (P)	Concepts of Dislocations (B,C) 7 min Snd Col Source: PSU (**) (R)	The Fracture of Solids (D) TC 4 min Sil Col Source: RMCS (*) (P)
	Deformation of Crystalline Materials (Part I) (B,C) 5 min Snd Col Source: PSU (**) (R)	The Germanium Crystal Lattice (F) TC 1 min Sil Col Source: SETCO (*) (P)
	Deformation of Crystalline Materials (Part II) (B,C) 6 min Snd Col Source: PSU (**) (R)	The Germanium Unit Cell (F) TC 3 min Sil Col Source: SETCO (*) (P)
	Introduction to Strengthening Materials (B,C) 6 min Snd Col Source: PSU (**) (R)	
	Metal Crystals (B,C) 35 min Sil B/W Source: PSU (*) (R)	
	Metal Crystals in Action (B,C) 30 min Snd Col Source: ASM (*) (R)	
	Metallurgical Background of Stainless Steel (B) 39 min Snd Col Source: RSC (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Materials Series (A) 6 Slds No tape Source: ASM (**) (P) Micro- and Macro-Structure: Single Crystals (A) 53 Slds 41 min tape Source: Ruoff & PC (*) (P) Nature and Structure of Materials (A) 35 Slds 50 min tape Source: Ruoff & PC (*) (P) Mechanical Properties Series (B,C) 11 Slds No tape Source: ASM (**) (P) Crystal Structure (E) 11 Slds No tape Col Source: SPE (**) (FL) Polymers (II): (E) Thermoplastic and Thermosetting Resins 15 Slds 25 min tape Source: Ruoff & PC (**) (P) X-Ray Analysis (E) 34 Slds No tape Source: SPE (**) (FL)	Seeing Inside Metals (B,C) 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P) Phase Equilibria (Volume 1 of a five-part course on Materials Technology (A) VT's and workbook 9 sessions, approx. 2-3 week's study Source: SL (*) (SA) Bonding and the Structure of Solids (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P) Some Consequences of a Periodic Lattice (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P) Miller Indices (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Research in Steel (B) 26 min Snd Col Source: USS (*) (FL) Seeing Inside Metals (B,C) 30 min Snd B/W Source: PSU (**) (R) Vanadium--A Transition Element (B,C) 22 min Snd Col Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER

SUBJECT AREA 8 - CHARACTERIZATION: STRUCTURE (MICRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Materials (A) Text from Open University Course: The Man-Made World 36 pp. Approx. 1 hr class study Source: H&R (*) (P) Phase Diagrams and Microstructure (A) (Section of Open University Course) Approx 6 hr module, 56 pp Source: H&R (*) (P) Structures and Microstructures (A) Text from Open University Course: The Man-Made World 40 pp Approx 1 hr class study Source: H&R (*) (P) Basic Metallurgy (B,C) (A programmed technical mini-course) Approx 1 weeks study, 260 pp Source: ASM (*) (P) Fundamentals of Indentation Hardness Testing (B,C) (A programmed technical mini-course) Approx 1 weeks study, 171 pp Source: ASM (*) (P) Nickel in Gray Iron-Influence on Structure and Properties (B,C) Research review module, 16 pp Source: INCO (**) (F) Role of Nickel in Carburizing Steel, The (B,C) Research review module, 12 pp Source: INCO (**) (F)	Computer Analysis of NMR in Nematic Solvents for Molecular Structure (A) 8 min Snd B/W Source: BTL (**) (FL) Looking at Materials #3: Characterization (A) 30 min Snd B/W Source: PSU (**) (R) Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A) 17 min Snd Col Source: AEC (**) (FL) Trapping of Free Radicals at Low Temperatures (A) 13 1/2 min Snd Col Source: NBS (**) (FL) Bubble Model of a Metal (B,C) 10 min Snd B/W Source: PSU (**) (R) Concepts of Dislocations (B,C) 7 min Snd Col Source: PSU (**) (R) Deformation of Crystalline Materials (Part I) (B,C) 5 min Snd Col Source: PSU (**) (R) Deformation of Crystalline Materials (Part II) (B,C) 6 min Snd Col Source: PSU (**) (R) Introduction to Strengthening Materials (B,C,) 6 min Snd Col Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Materials Series (A) 6 Slds No tape Source: ASM (**) (P) Micro- and Macro-Structure: Reflection Microscope (A) Polycrystalline Materials (A) Polyphase Materials (A) Composite Materials (I) Quantitative Microscopy (A) 53 Slds 41 min tape Source: Ruoff & PC (*) (P) Nature and Structure of Materials (A) 35 Slds 50 min tape Source: Ruoff & PC (*) (P) Phase Diagrams (I): Nonequilibrium Transformations (A) Age Precipitation Hardening (C) Fe-C System (B) 36 Slds 53 min tape Source: Ruoff & PC (*) (P) Strengthening Mechanisms: (I) (A) Second Phase Strengthening 44 Slds 57 min tape Source: Ruoff & PC (*) (P) Mechanical Properties Series (B,C) 11 Slds No tape Source: ASM (**) (P)	Internal Structure (Lesson 1) Introduction to Materials Science (set of 16 VT's) (A) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Microstructures (Lesson 11) Introduction to Materials Science (set of 16 VT's) (A) 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Structure-Property Relationships in Single-Phase Metals II (Lesson 13) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Structure-Property Relationships in Multiphase Alloys (Lesson 16) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Glass (Lesson 9) Introduction to Materials Science (set of 16 VT's) (G) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) The Microstructure of Alloys (B,C) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	Microstructure Examination (A lab experiment) (B,C) Objective: To study the microstructure of a variety of single-phase materials One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 8 - CHARACTERIZATION: STRUCTURE (MICRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Metallurgical Background of Stainless Steel (B) 39 min Snd Col Source: RSC (*) (FL) Story of the Chilled Car Wheel (B) 38 min Snd Col Source: Purdue (*) (R) Atomic Metallurgy (C) 18 min Snd Col Source: AEC (**) (FL) The Lead Matrix (C) 27 min Snd Col Source: ASF, BM, LIA (*) (FL) Micro-deformation of Uranium (C) 17 min Snd Col Source: AEC (**) (FL) Looking at Materials #5: Ceramics (D) 30 min Snd B/W Source: PSU (**) (R) Physical Chemistry of Polymers (E) 22 min Snd Col Source: BTL (**) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Polymers (I): (E) Idealized Random Chain Degree of Polymerization Topology of Vinyl Polymers Other Addition Polymers 26 Slds 40 min tape Source: Ruoff & PC (*) (P)		
Polymers (II): (E) Copolymers Condensation Polymers Network Polymers 15 Slds 25 min tape Source: Ruoff & PC (**) (P)		
Wood Structure (H) 35 min tape 114 Slds Source: SFOSU (*) (RP)		

SUBJECT AREA 9 - CHARACTERIZATION: STRUCTURE (DEFECT)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Alloy Design, Using Second Phases (B,C) Research review module, 24 pp Source: INCO (**) (F)	Dislocations Illustrated (A) 15 min Snd Col Source: MLS (*) (RP)	
	Looking at Materials #3: Characterization (A) 30 min Snd B/W Source: PSU (**) (R)	
	Nuclear Magnetic Resonance (A) 27 min Snd Col Source: PSU (**) (R)	
	Silicon and Its Compounds (A,F) 14 min Snd Col Source: PSU (**) (R)	
	Tension Testing (A) 21 min Snd B/W Source: NAC (*) (RP)	
	Testing for Tomorrow (A) 29 min Snd Col Source: AEC (*) (FL)	
	X-Ray Inspection (A) 15 min Snd Col Source: Purdue (*) (FL)	
	Bubble Model of a Metal (B,C) 10 min Snd B/W Source: PSU (**) (R)	
	Hands of the Giants (B,C) 30 min Snd Col Source: Wyman (**) (FL)	
	Introduction to Strengthening Materials (B,C) 6 min Snd Col Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Atomic Arrangements (II) (A) Symmetry and Properties Imperfections in Crystals 24 Slds 42 min tape Source: Ruoff & PC (*) (P) Atomic Arrangements (III) (A) Glasses 13 Slds 33 min tape Source: Ruoff & PC (*) (P) Basic Principles in Chemistry-Chemical Bonding (A) 1. Bonding Between Atoms of the Same Element: Metals and the Metallic Bond 2. Bonding Between Atoms of the Same Element: Non-Metals and the Covalent Bond 3. Bonding Between Atoms of Different Elements: Metals and Non-Metals-The Ionic Bond 4. Bonding Between Atoms of Different Elements-Non-Metals and Covalent Compounds 5. Electronegativity, Polar Covalent Bonds, Polar Molecules, Hydrogen Bonds, and Coordinate Covalent Bonds Slds or FS with AT and Workbook Approx. 2 hour each unit Source: CSC (*) (P) Mechanical Properties Series (B,C) 11 Slds No tape Source: ASM (**) (P)	Imperfections (Lesson 10) (Introduction to Materials Science (set of 16 VT's) (A) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Structure-Property Relationships in Single-Phase Metals I (Lesson 12) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Structure-Property Relationships in Single-Phase Metals II (Lesson 13) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Materials Science: The Relationships between Structure and Properties (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	Creep of Metals (A lab experiment) (C) Objective: To study creep deformation of metals. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 9 - CHARACTERIZATION: STRUCTURE (DEFECT)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Metal Crystals in Action (B,C) 30 min Snd Col Source: ASM (*) (R) Metals and Nonmetals (B,C,D) 11 min Snd B/W Source: PSU (**) (R) Research in Steel (B) 26 min Snd Col Source: USS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Dislocations in Graphite (A) 25 min Snd Col Source: Atomics Intl. (**) (FL) Electron Microscopy (A)[†] 23 min Snd Col Source: PSU (**) (R) Electron Microscopy (A)[†] (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) Eutectic Solidification in Transparent Materials (A) 13 min Sil B/W Source: BTL (**) (FL) Looking at Materials #3: Characterization (A) 30 min Snd B/W Source: PSU (**) (R) Optical Microscopy (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) Silver Dendrite Formation in Distilled Water (A) 11 min Sil B/W Source: BTL (**) (FL) The Solidification of Single Phase Transparent Materials (A) 11 min Sil B/W Source: BTL (**) (FL) Spectrograph (A) 20 min Snd Col Source: PSU (**) (R)	The Fracture of Solids (D) TC Sil Col Source: RMCS (*) (P)

[†] Two different films having the same title.

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A) 17 min Snd Col Source: AEC (**) (FL)	
	Terra Incognita (A) 27 min Snd B/W Source: PEI (*) (FL)	
	X-Ray Spectroscopy--The Inside Story (A) 26 min Snd Col Source: NASA (**) (FL)	
	Magnetic Reversal of Ferromagnetics (B,C,) 7 min Sil B/W Source: PSU-EC (**) (R)	
	Making Metals Behave (B,C) 25 min Snd Col Source: Assoc. Films (*) (FL)	
	Metallographic Sample Preparation--Coarse Grinding (B,C) 9 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Fine Grinding (B,C,) 8 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Mounting (B,C) 13 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Rough and Final Polishing (B,C) 25 min Snd Col Source: Buehler (*) (FL)	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Metallographic Sample Preparation--Sectioning (B,C) 9 min Snd Col Source: Buehler (*) (FL) Modern Metallography Equipment and Methods (B,C) 29 min Snd Col Source: Buehler (*) (FL) Research in Steel (B) 26 min Snd Col Source: USS (*) (FL) Story of the Chilled Car Wheel (B) 38 min Snd Col Source: Purdue (*) (R) Tensile Stress of Deep-drawing St VII 23 Sheet Metal (B) 8 1/2 min Sil B/W Source: PSU-EC (**) (R) Tensile Stress of GGG-50 Cast Iron (B) 5 min Sil B/W Source: PSU-EC (**) (R) Tension Testing (B) 21 min Snd Col Source: Purdue (*) (R) Control (C) 23 min Snd Col Source: FSI (**) (FL) Diffusion on Palladium Surfaces Under Ion Bombardment (C) 4 min Sil B/W Source: PSU-EC (**) (R)	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Dislocations in Alpha Brass (C) 15 min Sil Col Source: M&R (**) (FL)	
	Dislocation Movements (C) 9 min Sil B/W Source: PSU-EC (**) (R)	
	Domain Structures in Superconductors (C) 5 min Sil B/W Source: PSU-EC (**) (R)	
	Growth of Twins in Tin (C) 15 min Sil Col Source: M&R (**) (FL)	
	High Temperature Microscopy (C) 23 min Snd Col Source: Hacker (**) (FL)	
	Micro-deformation of Uranium (C) 17 min Snd Col Source: AEC (**) (FL)	
	Research on Cobalt (C) 8 min Snd Col Source: CIC (**) (FL)	
	Tensile Stress of High Purity Aluminum Al 99, 99R (C) 9 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of the NiCr20Ti-Al Nickel Alloy at Increased Temperatures (C) 9 1/2 min Sil B/W Source: PSU-EC (**) (R)	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Tensile Stress of NiCr20TiAl - PdNi40 High Temperature Soldered Joints (C) 13 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of Pure Annealed Zinc Zn99, 99 (C) 8 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of Pure Rolled Zinc Zn99, 99 (C) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C) 9 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of Sf-Cu Copper (C) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Torsional Strain in Metals (C) (2 films - with and without Snd) 11 - 12 min B/W Source: PSU-EC (**) (R)	
	Petrography--Ceramography Sample Preparation (D) 26 min Snd Col Source: Buehler (*) (FL)	
	Low-Energy Electron Diffraction from Germanium (100) and (111) Surfaces (F) 15 min Sil B/W Source: BTL (**) (FL)	

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Applications of Raman Spectroscopy (A) 154 page manual (approx 3-4 weeks study time) 6 ATs (running time - 5 hrs) Source: ACS (**) (P)	Industrial Applications of Radioisotopes (A) 57 min Snd Col Source: AEC (*) (FL)	Scintillation Spectrometry (A) TC, r/r 3 min Sil Col Source: Set Q (**) (P)
Spectral Interpretation (A) 1. Mass Spectral Interpretation 2. ESR 3. Carbon-13 4. NMR (Part I) 5. NMR (Part II) 6. Infrared 7. Raman Series of 7 workbooks with Slds and ATs Approx 1 - 2 hrs each unit Source: Huley (**) (P)	Looking at Materials #3: Characterization (A) 30 min Snd B/W Source: PSU (**) (R)	
	Chemistry of Iron and Steel (1 of a series of 5) (B) 14 min Snd Col Source: USS (*) (FL)	
	Metallurgical Background of Stainless Steel (B) 39 min Snd Col Source: RSC (*) (FL)	
	Preparation of White Cast Iron Standard (B) 16 min Snd Col Source: USBS (*) (FL)	
	Fahrenheit 3300 (D) 28 min Snd Col Source: BM (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Applications of Raman Spectorscopy (A) 6 ATs (running time - 5 hrs) 154 page manual (Approx. 3-4 weeks study time) Source: ACS (**) (P)	Polymer Science (E) Herman Mark presents the Fundamentals of Polymer Science 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	
Aspects of Liquid Scintillation Counting (A) 32 Slds 25 min Source: Beckman (**) (P)		
Basic Aspects of Infrared Spectrophotometry-Instrumentation (A) 51 Slds 45 min Source: Beckman (**) (P)		
Basic Atomic Absorption Spectroscopy (A) 1. Principles of Atomic Absorption - 37 Frms, 19 min 2. Instrumental Requirements-47 Frms, 26 min 3. Optimizing Instrument Conditions-37 Frms, 22 min 4. Sample Preparation and Special Sampling Techniques - 57 Frms, 39 min Slds or FS Teacher's Guide Source: CSC (*) (P)		
Basic Infrared Spectroscopy (A) 1. Instrumentation - 45 Frms, 20 min 2. Liquid Sampling Techniques 31 Frms, 20 min 3. Liquid Sampling Devices - 33 Frms, 20 min 4. Solid Sampling/Part I & II 53 Frms, 29 min 5. Quantitative Analysis/Part I. The Beer-Lambert Law - 31 Frms, 20 min 6. Quantitative Analysis/Part II. Performing the Analysis - 35 Frms, 20 min Slds or FS Teacher's Guide Source: CSC (*) (P)		

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Basic Spectrophotometry in the Clinical Laboratory (A) 30 Slds 25 min tape Source: Beckman (**) (P)		
Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A) 37 Slds 45 min tape Source: Beckman (**) (P)		
Spectral Interpretation (A) 1. Mass Spectral Interpretation 2. ESR 3. Carbon - 13 4. NMR (Part I) 5. NMR (Part II) 6. Infrared 7. Raman Slds and ATs with workbooks Approx 1 - 2 hrs each unit Source: Huley (**) (P)		
An Introduction to Infrared Spectroscopy (A) 36 Slds 4 min tape Source: Beckman (*) (P)		
An Introduction to Ultraviolet-Visible Spectroscopy (A) 36 Slds 25 min tape Source: Beckman (**) (P)		
Introduction to Radioimmunoassy (A) 40 Slds 35 min tape Source: Beckman (**) (P)		
Preparation of Liquids for Infrared Examination (A) 36 Slds 22 min tape Source: Beckman (*) (P)		

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Preparation of Solids for Infrared Examination - KBr Disks (A) 33 Slds 25 min tape Source: Beckman (*) (P)		
Preparation of Solids for Infrared Examination - Mulls (A) 35 Slds 20 min tape Source: Beckman (*) (P)		
Preparation of Solutions for Infrared Examination (A) 29 Slds 25 min tape Source: Beckman (*) (P)		
Principles of Gamma Counting (A) 53 Slds 51 min tape Source: Beckman (**) (P)		
The Selection and Effects of Infrared Operating Parameters (A) 23 Slds 20 min tape Source: Beckman (*) (P)		
Polymers (I): (E) Idealized Random Chain Degree of Polymerization Topology of Vinyl Polymers Other Addition Polymers 26 Slds 40 min tape Source: Ruoff & PC (*) (P)		
Polymers (II): (E) Copolymers Condensation Polymers Network Polymers 15 Slds 25 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 12 - CHARACTERIZATION: CHEMICAL COMPOSITION (TRACE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Analysis by Mass (A) 27 min Snd Col Source: PSU (**) (R) Mass Spectrometry (A) 30 min Snd Col Source: PSU (**) (R) Neutron Activation Analysis (A) 40 min Snd Col Source: PSU (**) (R) One in a Million (A) 15 min Snd Col Source: FSC (**) (P)	Aston's Mass Spectrograph (A) TC 2 min Sil Col Source: Set S (**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Aspects of Liquid Scintillation Counting (A) 32 Slds 25 min tape Source: Beckman (**) (P)		
Basic Atomic Absorption Spectroscopy (A) 1. Principles of Atomic Absorption - 37 Frms, 19 min 2. Instrumental Requirements-47 Frms, 26 min 3. Optimizing Instrument Conditions - 37 Frms, 22 min 4. Sample Preparation and Special Sampling Techniques - 57 Frms, 39 min Slds or FS Techer's Guide Source: CSC (*) (P)		
Basic Spectrophotometry in the Clinical Laboratory (A) 30 Slds 25 min tape Source: Beckman (**) (P)		
Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A) 37 Slds 45 min tape Source: Beckman (**) (P)		
Introduction to Radioimmunoassy (A) 40 Slds 35 min tape Source: Beckman (**) (P)		
An Introduction to Ultraviolet-Visible Spectroscopy (A) 36 Slds 25 min tape Source: Beckman (**) (P)		
Principles of Gamma Counting (A) 53 Slds 51 min tape Source: Beckman (**) (P)		

SUBJECT AREA 13 - CHARACTERIZATION: CHEMICAL COMPOSITION (NON-DESTRUCTIVE TESTING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Testing for Tomorrow (A) 29 min Snd Col Source: AEC (*) (FL) Future in Steel (B) 28 min Snd Col Source: MTPS (*) (FL) Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL)	

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Analysis by Mass (A) 27 min Snd Col Source: PSU (**) (R)	
	The Conquest of Light (Laser) (A) 10 min Snd Col Source: BTL (*) (FL)	
	Electron Microscopy (A) 23 min Snd Col Source: PSU (**) (R)	
	Electron Microscopy (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)	
	Introduction to Lasers (A) 17 min Snd Col Source: BTL (*) (FL)	
	Lasers Unlimited (A) 10 min Snd Col Source: BTL (*) (FL)	
	Looking at Materials #3: Characterization (A) 30 min Snd B/W Source: PSU (**) (R)	
	Making a Microscope (A) (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)	
	Mass Spectrometry (A) 30 min Snd Col Source: PSU (**) (R)	
	Nuclear Magnetic Resonance (A) 27 min Snd Col Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Basic Atomic Absorption Spectroscopy (A) 1. Principles of Atomic Absorption - 37 Frms, 19 min 2. Instrumental Requirements-47 Frms, 26 min 3. Optimizing Instrument Conditions - 37 Frms, 22 min 4. Sample Preparation and Special Sampling Techniques - 57 Frms, 39 min Slds or FS Teacher's Guide Source: CSC (*) (P) Basic Infrared Spectroscopy (A) 1. Instrumentation - 45 Frms, 20 min 2. Liquid Sampling Techniques 31 Frms, 20 min 3. Liquid Sampling Devices - 33 Frms, 20 min 4. Solid Sampling/Part I & II 53 Frms, 29 min 5. Quantitative Analysis/Part I. The Beer-Lambert Law - 31 Frms, 20 min 6. Quantitative Analysis/Part II. Performing the Analysis - 35 Frms, 20 min Slds or FS Teacher's Guide Source: CSC (*) (P) Basic Spectrophotometry in the Clinical Laboratory (A) 30 Slds 25 min tape Source: Beckman (**) (P) Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A) 37 Slds 45 min tape Source: Beckman (**) (P) An Introduction to Infrared Spectroscopy (A) 36 Slds 4 min tape Source: Beckman (*) (P)	Seeing Inside Metals (B,C) 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P)	

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	One in a Million (A) 15 min Snd Col Source: FSC (**) (FL) Optical Microscopy (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) Principles of the Optical Maser (A) 30 min Snd Col Source: BTL (*) (FL) Spectrograph (A) 20 min Snd Col Source: PSU A-V (**) (R) Tension Testing (A) 21 min Snd B/W Source: NAC (*) (RP) Terra Incognita (A) 27 min Snd B/W Source: PEI (*) (FL) Trapping of Free Radicals at Low Temperatures (A) 13 1/2 min Snd Col Source: NBS (**) (FL) The Ultimate Structure (A) 25 min Snd B/W Source: PEI (**) (FL) X-Ray-Crystallography (A) 21 min Snd Col Source: PSU (**) (R) Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Introduction to Radioimmunoassy (A) 40 Slds 35 min tape Source: Beckman (**) (P)		
An Introduction to Ultraviolet-Visible Spectroscopy (A) 36 Slds 25 min tape Source: Beckman (**) (P)		
Micro- and Macro-Structure: Reflection Microscope (A) 53 Slds 41 min tape Source: Ruoff & PC (*) (P)		
Preparation of Liquids for Infrared Examination (A) 36 Slds 22 min tape Source: Beckman (*) (P)		
Preparation of Solids for Infrared Examination-KBr Disks (A) 33 Slds 25 min tape Source: Beckman (*) (P)		
Preparation of Solids for Infrared Examination - Mulls (A) 35 Slds 20 min tape Source: Beckman (*) (P)		
Preparation of Solutions for Infrared Examination (A) 29 Slds 25 min tape Source: Beckman (*) (P)		
The Selection and Effects of Infrared Operating Parameters (A) 23 Slds 20 min tape Source: Beckman (*) (P)		

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	X-Ray Diffraction (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) (P)	
	X-Ray Inspection (A) 15 min Snd Col Source: Purdue (*) (FL)	
	X-Ray Spectroscopy--The Inside Story (A) 26 min Snd Col Source: NASA (**) (FL)	
	Metallographic Sample Preparation--Coarse Grinding (B,C,) 9 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Fine Grinding (B,C) 8 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Mounting (B,C) 13 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Rough and Final Polishing (B,C) 25 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation-Sectioning (B,C) 9 min Snd Col Source: Buehler (*) (FL)	
	Modern Metallography Equipment and Methods (B,C) 29 min Snd Col Source: Buehler (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
X-Ray Analysis (E) 34 Slds No tape Source: SPE (**) (FL)		

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Research in Steel (B) 26 min Snd Col Source: USS (*) (FL) Seeing Inside Metals (B,C) 30 min Snd B/W Source: PSU (**) (R) Tension Testing (B) 21 min Snd Col Source: Purdue (*) (R) Petrography--Ceramography Sample Preparation (D) 26 min Snd Col Source: Buehler (*) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Flotation: (A) Series of three films 1. Behavior of the Air Bubbles 2 1/2 min 2. Loading of the Air Bubbles 5 min 3. Separation of a Mixture (blue lead-quartz) 2 1/2 min Source: PSU-EC (**) (R) The Minerals Challenge (A) 27 min Snd Col Source: BM (*) (FL) The Searching Man (A) 22 min Snd Col Source: NFBC (*) (R) Cast Iron - Biography of a Metal (B) 27 min Snd Col Source: BM (*) (FL) Drama of Steel (B) 34 min Snd Col Source: BM (*) (FL) Electric Arc Furnace (1 of a series of 5) (B) 7 min Snd Col Source: USS (*) (FL) Elements of Hardening (B) 15 min Snd B/W Source: PSU (**) (R) Elements of Surface Hardening (B) 14 min Snd B/W Source: PSU (**) (R) Elements of Tempering, Normalizing, and Annealing (B,C) 22 min Snd Col Source: Purdue (*) (R)	Minerals and Ores (A) TC, r/r 4 min Sil Col Source: LBF (*) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Chemistry of Iron (B) FS 35 Frms No tape Source: EPS (*) (FL) Chemistry of Steel (B) FS Col 50 Frms No tape Source: EPS (*) (FL) Raw Materials of Steelmaking (B) FS Col 43 Frms No tape Source: AIS (*) (FL)		

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Equiaxed Zone Formation in Castings (B,C) 10 min Sil Col Source: BTL (**) (FL) Ferrite Precipitation in Chromium Steel (B) 4 min Sil B/W Source: PSU-EC (**) (R) Iron Making (B) 13 min Snd B/W Source: PSU (**) (R) Iron Ore Mining (B) 13 min Snd B/W Source: PSU (**) (R) Iron - Product of the Blast Furnace (B) 11 min Snd B/W Source: PSU (*) (R) Modern Steel Making (B) 23 min Snd Col Source: USS (*) (FL) The New Bethlehem Steel (B) 20 min Snd Col Source: BSC (*) (FL) Stainless Steel: Historical Background (one of a series) (B) 30 min Snd Col Source: RSC (*) (FL) Steel (B) 33 min Snd Col Source: ISC (*) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Steel and America - A New Look (B) 28 min Snd Col Source: AIS (*) (FL)	
	Steelmaking Today (B) 29 min Snd Col Source: BM (*) (FL)	
	Taconite (B) 29 min Snd Col Source: Armco (*) (FL)	
	Trip Steel (B) 11 min Snd Col Source: AEC (**) (FL)	
	What Goes Into the Blast Furnace (B) 15 min Snd B/W Source: PSU (**) (R)	
	Aluminum (C) 28 min Snd Col Source: MTPS (*) (FL)	
	Aluminum: Metal of Many Faces (C) 20 min Snd Col Source: BM (*) (FL)	
	Aluminum on the March (C) 28 min Snd Col Source: RMC (*) (FL)	
	Better Alloys by Vacuum Melting (C) 17 min Snd Col Source: Coe (**) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Chemistry of Aluminum (C) 16 min Snd Col Source: RMC (*) (FL)	
	Copper! (C) 37 min Snd Col Source: Assoc. Films (*) (FL)	
	Copper - Mining and Smelting (C) 10 min Snd Col Source: BF (*) (R)	
	Copper Mining in Zambia (C) 25 min Snd Col Source: AMC (*) (FL)	
	Copper - Mining, Smelting, and Refining (C) 35 min Snd Col Source: MSU (*) (R)	
	Copper Network (C) 27 min Snd Col Source: BM (*) (FL)	
	Copper - Oldest Modern Metal (C) 27 min Snd Col Source: BM (*) (FL)	
	Copper Smelting (C) 15 min Sil B/W Source: PSU (**) (R)	
	Extraordinary World of Zinc (C) 27 min Snd Col Source: ASF, BM, ZII (*) (FL)	
	Lead - From Mine to Metal (C) 28 min Snd Col Source: BM (*) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	The Lead Matrix (C) 27 min Snd Col Source: ASF, BM, LIA (*) (FL)	
	Lead Milling, Smelting and Refining (C) 34 min Snd B/W Source: PSU (*) (R)	
	Magnesium - Metal from the Sea (C) 20 min Snd Col Source: BM (*) (FL)	
	Metals Frontier (C) 22 min Snd Col Source: AEC (**) (FL)	
	Mining Copper (C) 24 min Snd Col Source: AMC (*) (FL)	
	Mining for Nickel (C) 45 min Snd Col Source: Rothacker (*) (FL)	
	Milling and Smelting of Sudbury Nickel Ore (C) 54 min Snd Col Source: Rothacker (*) (FL)	
	A Product of the Imagination (C) 26 min Snd Col Source: ACA (*) (FL)	
	Refining Copper from Sudbury Nickel Ore (C) 39 min Snd Col Source: Rothacker (*) (FL)	
	This is Magnesium (C) 12 min Snd Col Source: Dow (*) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Time for Tin (C) 30 min Snd Col Source: MTPS (*) (FL) Fahrenheit 3300 (D) 28 min Snd Col Source: BM (*) (FL)	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Charging and Operating a Cupola (A) 14 min Snd Col Source: Purdue (*) (R)	Diffusion on Palladium-Surfaces During Simultaneous Ion- Irradiation (C,D) r/r 4 min Sil B/W Source: IWF (**) (P)
	The Minerals Challenge (A) 27 min Snd Col Source: BM (*) (FL)	Solid Solutions (C) TC 4 min Sil B/W Source: SET R (*) (P)
	The Blast Furnace (B) 7 1/2 min Snd Col Source: USS (*) (FL)	
	Chemistry of Iron and Steel (1 of a series of 5) (B) 14 min Snd Col Source: USS (*) (FL)	
	Drama of Steel (B) 34 min Snd Col Source: BM (*) (FL)	
	Electric Arc Furnace (1 of a series of 5) (B) 7 min Snd Col Source: USS (*) (FL)	
	Elements of Hardening (B) 15 min Snd B/W Source: PSU (**) (R)	
	Elements of Surface Hardening (B) 14 min Snd B/W Source: PSU (**) (R)	
	Equiaxed Zone Formation in Castings (B,C) 10 min Sil Col Source: BTL (**) (FL)	
	Ferrite Precipitation in Chromium Steel (B) 4 min Sil B/W Source: PSU-EC (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Waste Materials (Section of open University Course) (A) 20 min tape only Source: H&R (*) (P) Raw Materials of Steelmaking (B) FS Col 43 Frms No tape Source: AIS (*) (FL)		

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Iron Making (B) 13 min Snd B/W Source: PSU (**) (R)	
	Iron Ore Mining (B) 13 min Snd B/W Source: PSU (**) (R)	
	Iron - Product of the Blast Furnace (B) 11 min Snd B/W Source: PSU (*) (R)	
	Modern Heat Treating Methods (B,C) 15 min Snd Col Source: L&N (*) (FL)	
	Modern Steel Making (B) 23 min Snd Col Source: USS (*) (FL)	
	The New Bethlehem Steel (B) 20 min Snd Col Source: BSC (*) (FL)	
	Open Hearth Furnace (B) 7 min Snd Col Source: USS (*) (FL)	
	Special Properties of Stainless Steel (B) 40 min Snd Col Source: RSC (*) (FL)	
	Stainless Steel: Historical Background (one of a series) (B) 30 min Snd Col Source: RSC (*) (FL)	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Stainless Steel: Metallurgical Background (one of a series) (B) 39 min Snd Col Source: RSC (*) (FL) Steel (B) 33 min Snd Col Source: ISC (*) (FL) Steel and America - A New Look (B) 28 min Snd Col Source: AIS (*) (FL) Steel by Stop Watch (Basic Oxygen Process) (B) 24 min Snd Col Source: J&L (*) (FL) Steelmaking Today (B) 29 min Snd Col Source: BM (*) (FL) Taconite (B) 29 min Snd Col Source: Armco (*) (FL) This is Steel (B) 33 min Snd Col Source: MTPS (*) (FL) Aluminum (C) 28 min Snd Col Source: MTPS (*) (FL) Aluminum: Metal of Many Faces (C) 20 min Snd Col Source: BM (*) (FL) Aluminum on the March (C) 28 min Snd Col Source: RMC (*) (FL)	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Better Alloys by Vacuum Melting (C) 17 min Snd Col Source: Coe (**) (FL)	
	Chemistry of Aluminum (C) 16 min Snd Col Source: RMC (*) (FL)	
	Copper! (C) 37 min Snd Col Source: Assoc. Films (*) (FL)	
	Copper - Mining and Smelting (C) 10 min Snd Col Source: BF (*) (R)	
	Copper Mining in Zambia (C) 25 min Snd Col Source: AMC (*) (FL)	
	Copper - Mining, Smelting, and Refining (C) 35 min Snd Col Source: MSU (*) (R)	
	Copper Network (C) 27 min Snd Col Source: BM (*) (FL)	
	Copper - Oldest Modern Metal (C) 27 min Snd Col Source: BM (*) (FL)	
	Copper Smelting (C) 15 min Sil B/W Source: PSU (**) (R)	
	The Differences in Copper (C) 15 min Snd Col Source: AMC (*) (FL)	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Extraordinary World of Zinc (C) 27 min Snd Col Source: ASF, BM, ZII (*) (FL)	
	Lead - From Mine to Metal (C) 28 min Snd Col Source: BM (*) (FL)	
	The Lead Matrix (C) 27 min Snd Col Source: ASF, BM, LIA (*) (FL)	
	Lead Milling, Smelting and Refining (C) 34 min Snd B/W Source: PSU (*) (R)	
	Magnesium - Metal from the Sea (C) 20 min Snd Col Source: BM (*) (FL)	
	Metals Frontier (C) 22 min Snd Col Source: AEC (**) (FL)	
	Mining Copper (C) 24 min Snd Col Source: AMC (*) (FL)	
	Mining for Nickel (C) 45 min Snd Col Source: Rothacker (*) (FL)	
	Milling and Smelting of Sudbury Nickel Ore (C) 54 min Snd Col Source: Rothacker (*) (FL)	
	A Product of the Imagination (C) 26 min Snd Col Source: ACA (*) (FL)	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Refining Copper from Sudbury Nickel Ore (C) 39 min Snd Col Source: Rothacker (*) (FL) This is Magnesium (C) 12 min Snd Col Source: Dow (*) (FL) Time for Tin (C) 30 min Snd Col Source: MTPS (*) (FL)	

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SUBJECT AREA 17 - PROCESSING: PREPARATION (ULTRAPURIFICATION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Refining Copper from Sudbury Nickel Ore (C) 39 min Snd Col Source: Rothacker (*) (FL)	

SUBJECT AREA 18 - PROCESSING: PREPARATION (PARTICULATES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Colloidal State (A) 15 min Snd Col Source: PSU (**) (R) Colloids (A) 11 min Snd B/W Source: PSU (**) (R) What is Iron Powder? (B) 25 min Snd Col Source: Hoeg. (*) (FL) Looking at Materials #5: Ceramics (D) 30 min Snd B/W Source: PSU (**) (R) Swing Sieve: (D) Series of three films 1. Dry Processing 2 min 2. Wet Processing 4 min 3. Individual Grain Behavior in Wet Processing 3 min Sil B/W Source: PSU-EC (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Micro- and Macro-Structure: Quantitative Microscopy (A) 53 Slds 41 min tape Source: Ruoff & PC (*) (P)		

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Crystal Growth Morphologies (A) 17 min Sil Col Source: BTL (**) (FL)	Crystals--Growth From A Melt (A) TC 4 min Sil Col Source: Thorne (*) (P)
	Crystal Kaleidoscope (A) 5 min Sil Col Source: BTL (*) (FL)	Crystals--Growth in Solution (A) TC 4 min Sil Col Source: Thorne (*) (P)
	Crystals (A) 24 min Snd Col Source: PSU (**) (R)	Growth of Crystals (A) TC 4 min Sil Col Source: LONG (*) (P)
	Flow Patterns in Floating Liquid Zones with Rotating End Members (A) 14 min Sil Col Source: BTL (**) (FL)	Solution, Evaporation and Crystallization (A) TC, r/r 3 min Sil Col Source: SET U (*) (P)
	Looking at Materials #1: Crystal Growth (A) 30 min Snd B/W Source: PSU (**) (R)	Sulphur Crystals (A) TC 4 min Sil Col Source: LONG (*) (P)
	Looking at Materials #4: Crystal Growth in Gels (A) 30 min Snd B/W Source: PSU (**) (R)	
	Looking at Materials #6: High Pressure (A) 30 min Snd B/W Source: PSU (**) (R)	
	Silver Dendrite Formation in Distilled Water (A) 11 min Sil B/W Source: BTL (**) (FL)	
	The Solidification of Single Phase Transparent Materials (A) 11 min Sil B/W Source: BTL (**) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Equilibrium and Kinetics (III) (A) **Nucleation** **21 Slds 59 min tape** **Source: Ruoff & PC** (**) (P)	To Crystallize or not to Crystallize? (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Stabilities of Floating Liquid Zones in Simulated Zero Gravity (A) 9 min Snd B/W Source: BTL (**) (FL)	
	Study of Crystals (A) 18 min Snd Col Source: PSU (**) (R)	
	Study of Grain Growth in BEO Using a New Transmitted Light Hot State (A) 17 min Snd Col Source: AEC (**) (FL)	
	Vapor-Liquid-Solid, A Fundamental Process for Growing Crystals (A) 5 min Snd Col Source: BTL (**) FL	
	Equiaxed Zone Formation in Castings (B,C) 10 min Sil Col Source: BTL (**) (FL)	
	Metal Crystals (B,C) 35 min Sil B/W Source: PSU (*) (R)	
	Metal Crystals in Action (B,C) 30 min Snd Col Source: ASM (*) (R)	
	Crystal Growth--Growth of tin whiskers in SEM (C) 6 min Sil B/W Source: PSU-EC (**) (R)	
	Growth of Twins in Tin (C) 15 min Sil Col Source: M&R (**) (FL)	

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Research on Cobalt (C) 8 min Snd Col Source: CIC (**) (FL) Crystal Growth--Growth of GaP-whiskers (D,E) 6 min Sil B/W Source: PSU-EC (**) (R) Crystalline Transformation (D) 4 min Sil Col Source: PSU-EC (**) (R) Krystallos (Quartz Crystal Growth) (D) 11 min Snd Col Source: BTL (*) (FL)	

SUBJECT AREA 20 - PROCESSING: PREPARATION (THIN FILMS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Future in Steel (B) 28 min Snd Col Source: MTPS (*) (FL) Magnetic Reversal of Ferromagnetics (B,C) 7 min Sil B/W Source: PSU-EC (**) (R) New Dimensions in Metals (B,C) 10 min Snd Col Source: HPMC (**) (FL) Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL) Infab Processing Refractory Metals (C) 15 min Snd Col Source: UCC (**) (FL) I. C. A Shrinking World (F) 16 min Snd Col Source: BTL (*) (FL) Integrated Electronics-A New Art (F) 16 min Snd Col Source: BTL (*) (FL) Micro (F) 14 min Snd Col Source: MTPS, WEC (*) (FL) Modern Transistor Fabrication (F) 35 min Snd Col Source: BTL (*) (FL) Printed Circuit Story (F) 16 min Snd Col Source: PSU (*) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Magnetic Properties Special Magnetic Materials (B,I) 30 Slds 39 min tape Source: Ruoff & PC (**) (P) Microwave Curing (E) 24 Slds No tape Col Source: SPE (*) (FL)		

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Processing Materials: How and Why? (Section of Open University Course) (A) Approx 6 hr module, 66 pp Source: H&R (*) (P) Skin of Concorde, The (A) (Section of Open University Course) Approx 6 hr module, 84 pp Source: H&R (*) (P) Alloy Design, Using Second Phases (B,C) Research review module, 24 pp Source: INCO (**) (F) Application and Design of Ductile Iron Drawing and Forming Dies, The (B,C) Research review module, 8 pp Source: INCO (**) (F) Hot Rolled Alloy Steel (B) (A programmed technical mini-course) Approx 1 weeks study, 95 pp Source: ASM (*) (P) Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid (B,C) Research review module, 44 pp Source: INCO (**) (F) Strengthening Mechanisms in Nickel-Base Superalloys (B,C) Research review module, 28 pp Source: INCO (**) (F) Porcelain (D) (Section of Open University Course) Approx 6 hr module, 88 pp Source: H&R (*) (P)	Concorde (A) (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*) Eutectic Solidification in Transparent Materials (A) 13 min Sil B/W Source: BTL (**) (FL) Blacksmith for the Stars (B,C) 17 min Snd Col Source: Wyman (*) (FL) Drama of Metal Forming (B,C) 28 min Snd Col Source: Shell (*) (FL) Elements of Surface Hardening (B) 14 min Snd B/W Source: PSU (**) (R) Elements of Tempering, Normalizing, and Annealing (B,C) 22 min Snd Col Source: Purdue (*) (FL) Forging in Closed Dies (B,C) 28 min Snd Col Source: PSU (**) (R) Future in Steel (B) 28 min Snd Col Source: MTPS (*) (FL) Hands of the Giants (B,C) 30 min Snd Col Source: Wyman (**) (FL) Heat Treatment of Steel (B) 34 min Snd Col Source: OSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
New Materials (Section of Open University Course) (A) 20 min tape only Source: H & P (*) (P) Heat Treatment Series (B,C) 9 Slds No tape Source: ASM (**) (P) Processing Theories (E) 35 Slds No tape Source: SPE (**) (FL)	Metal Forming (B,C) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)	Heat Treatment of Steel (A lab experiment) (B) Objective: To study the effect of cooling rate on the hardness and microstructure of a low and high carbon steel. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Bending (A lab experiment) (C) Objective: To measure the force-penetration curve on bending and compare to analysis. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Cold Work - Anneal (A lab experiment) (C) Objective: To measure changes in mechanical properties during cold work and annealing of cartridge brass. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Precipitation Hardening (A lab experiment) (C) Objective: To study precipitation hardening in Muntz metal. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Heat Treatment of Steel - Elements of Tempering, Normalizing and Annealing (B) 22 min Snd Col Source: PSU, Purdue (*) (R)	
	High Energy Rate Forming (B,C) 18 min Snd Col Source: USI (*) (FL)	
	Hot Rolling of Steel Sheets (1 of a series of 6) (B) 7 min Snd Col Source: USS (*) (FL)	
	Making Metals Behave (B,C) 25 min Snd Col Source: Assoc. Films (*) (FL)	
	Martensitic Transformation of Nickel-Chromium-Steel (B) 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Metallurgical Background of Stainless Steel (B) 39 min Snd Col Source: RSC (*) (FL)	
	Metallurgy Plus (B) 12 min Snd Col Source: MTPS (*) (FL)	
	Metals and Nonmetals (B,C,D) 11 min Snd B/W Source: PSU (**) (R)	
	Modern Heat Treating Methods (B,C) 15 min Snd Col Source: L&N (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		Sintering (A lab experiment) (C) Objective: To study the effect of sintering on the hardness of metal compacts. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Wire Drawing (A lab experiment) (C) Objective: To measure the wire drawing force as a function of material being drawn and die angle. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	The New Bethlehem Steel (B) 20 min Snd Col Source: BSC (*) (FL)	
	New Dimensions in Metals (B,C) 10 min Snd Col Source: HPMC (**) (FL)	
	No Trouble At All (B) 32 min Snd Col Source: TC (*) (FL)	
	Oxy-acetylene Cutting (B,C) 10 min Sil Col Source: PSU-EC (**) (R)	
	Pioneer of Progress (B,C) 15 min Snd Col Source: AISC (*) (FL)	
	Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL)	
	Semi-Finished Steel (one of a series of 5) (B) 8 min Snd Col Source: USS (*) (FL)	
	Special Properties of Stainless Steel (B) 40 min Snd Col Source: RSC (*) (FL)	
	Stainless Steel: Metallurgical Background (one of a series) (B) 39 min Snd Col Source: RSC (*) (FL)	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Stainless Steel: Deep Drawing (one of a series) (B) 38 min Snd Col Source: RSC (*) (FL)	
	Steel (B) 33 min Snd Col Source: ISC (*) (FL)	
	Steel and America - A New Look (B) 28 min Snd Col Source: AIS (*) (FL)	
	Steelmaking Today (B) 29 min Snd Col Source: BM (*) (FL)	
	Story of Stainless Steel (B) 27 min Snd Col Source: MTPS (*) (FL)	
	Tensile Stress of Deep-drawing St VII 23 Sheet Metal (B) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	This is Steel (B) 33 min Snd Col Source: MTPS (*) (FL)	
	To Be Forged (B,C) 18 min Snd Col Source: MTPS (*) (FL)	
	Tool Steel for Cold Work (B) 16 min Snd Col Source: MTPS (*) (FL)	
	Trip Steel (B) 11 min Snd Col Source: AEC (**) (FL)	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Vacuum Pouring for Better Forgings (B,C) 15 min Snd Col Source: MTPS (*) (FL)	
	Extra High Voltage Cables (C) 15 min Snd Col Source: RMC (*) (FL)	
	Heat Treatment of Aluminum: Part I (C) 19 min Snd B/W Source: PSU (**) (R)	
	Heat Treatment of Aluminum Part II (C) 24 min Snd B/W Source: PSU (**) (R)	
	High Temperature Microscopy (C) 23 min Snd Col Source: Hacker (**) (FL)	
	Research on Cobalt (C) 8 min Snd Col Source: CIC (**) (FL)	
	The Science of Making Brass (C) No time given Snd Col Source: Chase (*) (FL)	
	Solidification of Metallic Melts (C) 11 min Sil B/W Source: PSU-EC (**) (R)	
	Porcelain-A Materials Heritage (Section of Open University Course) (D) 25 min Snd Col Source: H&R (P) AS (R) (*)	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Breakthrough (F) 9 min Snd Col Source: WEC (*) (FL)	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
The Fundamentals of Metal Casting (B,C) (A programmed technical mini-course) Approx. one week's study, 200 pp Source: ASM (*) (P)	Equiaxed Zone Formation in Castings, An Explanation Based on Dendritic Remelting (A) 10 min Sil B/W Source: BTL (**) (FL)	Addition Polymerization (E) TC 3 min Sil Col Source: EBEC (**) (P)
Heat-resistant Castings, Corrosion-resistant Castings, Their Engineering Properties and Applications (B,C) Research review module, 60 pp Source: INCO (**) (F)	Eutectic Solidification in Transparent Materials (A) 13 min Sil B/W Source: BTL (**) (FL)	Plastics (E) TC 4 min Sil Col Source: LONG (*) (P)
Plastics - Their Use in Manufacturing (E) Course consists of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials Approx 10 weeks of study Source: SME (**) (P)	Extrusion (A) 10 min Snd Col Source: B&W (*) (FL)	
	Extrusion - Materials Flow (A) 7 1/2 min Col Sil Source: PSU-EC (**) (R)	
	Looking at Materials #6: High Pressure (A) 30 min Snd B/W Source: PSU (**) (R)	
	Vacuum Melting (A) 15 min Snd Col Source: UCC (*) (FL)	
	Casteel - "Engineering Flexibility" (B) 30 min Snd Col Source: SFS (*) (FL)	
	Cast Iron - Biography of a Metal (B) 27 min Snd Col Source: BM (*) (FL)	
	Chemistry of Iron and Steel (1 of a series of 5) (B) 14 min Snd Col Source: USS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
New Materials (Section of Open University Course) (A) 20 min tape only Source: H & R (*) (P)	Metal Forming (B,C) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)	Plastics - Their Use in Manufacturing (E) Course consisting of: 8 Packets of hands on material 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SME (**) (P)
Strength in Shape--Through Steel Casting Design (B) FS Col 11 min Snd/disc Source: SFS (*) (FL)	Polymers (Lesson 8) Introduction to Materials Science (set of 16 VT's) (E) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
Extrusion Theory (E) 22 Slds No tape Col Source: SPE (**) (FL)		
The Fabulous Necklace (E) 88 Slds Col 18 min tape Source: U of A (*) (FL)		
Silicone Elastomers (E) 18 Slds No tape Source: SPE (**) (FL)		

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Drama of Metal Forming (B,C) 28 min Snd Col Source: Shell (*) (FL)	
	Ferrite Precipitation in Chromium Steel (B) 4 min Sil B/W Source: PSU-EC (**) (R)	
	Induction Stirred Ladle Vacuum Degassing (B) 15 min Snd Col Source: RSC (*) (FL)	
	Iron Making (B) 13 min Snd B/W Source: PSU (**) (R)	
	Jewels for Industry (B) 14 1/2 min Snd Col Source: SSCC (*) (FL)	
	Melting of Huron Die Steel (B) 19 min Snd Col Source: ALSC (*) (FL)	
	Metallurgy Plus (B) 12 min Snd Col Source: MTPS (*) (FL)	
	Modern Steel Making (B) 23 min Snd Col Source: USS (*) (FL)	
	Open Hearth Furnace (B) 7 min Snd Col Source: USS (*) (FL)	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Photoelastic Studies of Joined Sections in Steel Casting and Weldments (B) 27 min Snd B/W Source: SFS (**) (FL)	
	Preparation of White Cast Iron Standard (B) 16 min Snd Col Source: USBS (*) (FL)	
	Semi-Finished Steel (one of a series of 5) (B) 8 min Snd Col Source: USS (*) (FL)	
	Special Properties of Stainless Steel (B) 40 min Snd Col Source: RSC (*) (FL)	
	Stainless Steel: Metallurgical Background (one of a series) (B) 39 min Snd Col Source: RSC (*) (FL)	
	Steel (B) 33 min Snd Col Source: ISC (*) (FL)	
	Steel and America - A New Look (B) 28 min Snd Col Source: AIS (*) (FL)	
	Steelmaking Today (B) 29 min Snd Col Source: BM (*) (FL)	
	Story of the Chilled Car Wheel (B) 38 min Snd Col Source: Purdue (*) (R)	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Tensile Stress of GGG-50 Cast Iron (B) 5 min Sil B/W Source: PSU-EC (**) (R)	
	The Use and Care of Twist Drills (B) 23 min Snd Col Source: MTPS (*) (FL)	
	Vacuum Pouring for Better Forgings (B,C) 15 min Snd Col Source: MTPS (*) (FL)	
	Vacuum Steel (B) 4 1/2 min Sil Col Source: PSU-EC (**) (R)	
	Better Alloys by Vacuum Melting (C) 17 min Snd Col Source: Coe (**) (FL)	
	Copper - Mining and Smelting (C) 10 min Snd Col Source: BF (*) (R)	
	Copper Mining in Zambia (C) 25 min Snd Col Source: AMC (*) (FL)	
	Copper - Mining, Smelting, and Refining (C) 35 min Snd Col Source: MSU (*) (R)	
	Copper Network (C) 27 min Snd Col Source: BM (*) (FL)	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Copper - Oldest Modern Metal (C) 27 min Snd Col Source: BM (*) (FL)	
	Copper Smelting (C) 15 min Sil B/W Source: PSU (**) (R)	
	Die Casting: How Else Would You Make It? (C) 39 min Snd Col Source: PSU (**) (R)	
	Investment Casting (C) 25 min Snd Col Source: CIC (*) (FL)	
	Lead - From Mine to Metal (C) 28 min Snd Col Source: BM (*) (FL)	
	A Product of the Imagination (C) 26 min Snd Col Source: ACA (*) (FL)	
	PPG: Glass for the Seventies (D,G) 12 min Snd Col Source: MTPS (*) (FL)	
	Naturally, It's Rubber (E) 24 min Snd Col Source: MRB (*) (FL)	
	Our Polymer World (E) 22 min Snd Col Source: Polysar (*) (FL)	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Plastics: Industrial Processes and Products (E) 24 min Snd Col Source: PSU (**) (R) Polysulfides for Industry (E) 18 min Snd Col Source: Thiokol (*) (FL) Looking at Materials: #2: Composites (I) 30 min Snd B/W Source: PSU (**) (R)	

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Corrosion Testing of Electrodeposited Coatings (B,C) Research review module, 8 pp Source: INCO (**) (F) Materials for Light-Duty Electrical Contacts (C) Research review module, 16 pp Source: INCO (**) (F) Nickle Plating - Processes and Properties of Deposits (C) Research review module, 64 pp Source: INCO (**) (F) Plastics - Their Use in Manufacturing (E) Course consisting of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials Approx 10 weeks of study Source: SME (**) (P)	Abrasion of the Cutting Edge in Milling of Wooden Materials (B,H) 10 min Sil B/W Source: PSU-EC (**) (R) Advanced Technology in Specialty Steel (B) 14 min Snd Col Source: UCC (**) (FL) Blacksmith for the Stars (B,C) 17 min Snd Col Source: Wyman (*) (FL) Hot Dip Galvanizing After Fabrication (B) 12 min Snd Col Source: AHDGA (*) (FL) Machining of C45W3 Steel (B) 9 min Sil B/W Source: PSU-EC (**) (R) Machining of Various Types of Cast Iron - (Chip Formation) (4 films in all) (B) 4 1/2 - 5 min each Sil B/W Source: PSU-EC (*) (R) Machining of Various Types of Steel - (Chip Formation and Cutting Process) (14 films in all) (B) From 4-12 min Sil B/W Source: PSU-EC (**) (R) Metallographic Sample Preparation--Coarse Grinding (B,C) 9 min Snd Col Source: Buehler (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
	Flame Sprayed Coating (B,C,D) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP) Metal Removal (B,C) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP) Powder Coating (B,C,D) 52 min Snd Col 3/4" Cassette Source: SME (**) (RP)	Chip Formation (A lab experiment) (B,C) Objective: To illustrate the various types of chips that can be produced during machining and to examine the effect of lubrication on chip formation. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Measurement of Cutting Temperature (A lab experiment) (B) Objective: To determine the relative effects of changes in cutting speed and feed rate on the cutting temperature. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Roughness of Turned Surfaces (A lab experiment) (B) Objective: To illustrate the relative magnitudes of the natural and ideal surface roughness in a turning operation and to examine the effects of cutting speed on natural surface roughness. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Tool Wear (A lab experiment) (B) Objective: To measure flank wear on a cutting tool during a turning test. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Metallographic Sample Preparation--Fine Grinding (B,C) 8 min Snd Col Source: Buenler (*) (FL)	
	Metallographic Sample Preparation--Mounting (B,C) 13 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Rough and Final Polishing (B,C) 25 min Snd Col Source: Buehler (*) (FL)	
	Metallographic Sample Preparation--Sectioning (B,C) 9 min Snd Col Source: Buehler (*) (FL)	
	The New Bethlehem Steel (B) 20 min Snd Col Source: BSC (*) (FL)	
	No Trouble At All (B) 32 min Snd Col Source: TC (*) (FL)	
	Stainless Steel: Finishing (one of a series) (B) 27 min Snd Col Source: RSC (*) (FL)	
	Turning of High Speed Steel (B) 7 min Sil B/W Source: PSU-EC (**) (R)	
	Zinc Controls Corrosion (B,C) 38 min Snd Col Source: MTPS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		Effect of Tool Rake Angle on Orthogonal Machining (A lab experiment) (C) Objective: To investigate the effect of changes in tool rake angle α, on the specific cutting pressure P_s, the shear angle ϕ, the apparent shear strength of the work material S, and the mean fraction angle β. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Effects of Speed and Feed in Orthogonal Machining (A lab experiment) (C) Objective: To measure the effect that changes in cutting speed and feed have on the various parameters in orthogonal cutting. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Lubricating Effect of Cutting fluids (A lab experiment) (C) Objective: To illustrate the effect on dry cutting conditions of the application of a chemical compound by observing the changes in the tool forces and the cutting ratio. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Die Casting: How Else Would You Make It? (C) 39 min Snd Col Source: PSU (**) (R)	
	Machining of Ms 58 F 51 Brass (C) 4 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Machining of the AlCuMgPb Aluminum Alloy - (Chip Formation and Cutting Process) (4 films in all (C) 6 - 7 min each Sil B/W Source: PSU-EC (**) (R)	
	Machining of the G-AlSi 12 CuNi Aluminum Alloy (C) 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	A Product of the Imagination (C) 26 min Snd Col Source: ACA (*) (FL)	
	The Science of Making Brass (C) No time given Snd Col Source: Chase (*) (FL)	
	Cutting of Glass with a Diamond Cutting Tool (D,G) 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Petrography--Ceramography Sample Preparation (D) 26 min Snd Col Source: Buehler (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		Plastics - Their Use in Manufacturing (E) Course consisting of: 8 Packets of hands on material 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SME (**) (P)

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Porcelain-A Materials Heritage (Section of Open University Course) (D) 25 min Snd Col Source: H&R (P) AS (R) (*)	
	Machining of Hard Polyvinylchloride (E) 4 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Machining of 6 Polyamide (E) 7 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Machining of Type Vf 3110 Vulcanized Fiber (E) 7 min Sil B/W Source: PSU-EC (**) (R)	
	Breakthrough (F) 9 min Snd Col Source: WEC (*) (FL)	
	Fire Retardant Treated Wood (H) 20 min Snd Col Source: AWPI (*) (FL)	
	Looking at Materials: #2: Composites (I) 30 min Snd B/W Source: PSU (**) (R)	

SUBJECT AREA 24 - PROCESSING: FORMING (JOINING)

MEDIA

PRINT

Fundamentals of Adhesive Bonding (A)
(A programmed technical mini-course)

Approx one weeks study
117 pp
Source: ASM
(*) (P)

Modulus of Elasticity-Flexure (A)

Experiment with pre-gaged beam
Student workbook, notes for instructor
Approx 2 hr unit
Source: VRE
(*) (P)

Basic Fastening and Joining Techniques (B,C) (A programmed technical mini-course)

Approx 1 weeks study, 117 pp
Source: ASM
(*) (P)

Welding and Brazing of Copper-Nickel Alloys (C)

Research review module, 8 pp
Source: INCO
(**) (F)

Non-Metallic Materials (D,E, G,I) (Volume 3 of a five-part course on Materials Technology)

Workbook and VTs
11 sessions, approx 2-3 weeks study
Source: SL
(*) (SA)

Plastic Pipe Saddle Design (E) (Case Study)

43 pp, Order No. ECL 126
(From Engineering Case Library)

16 mm FILM

Adhesion-Bonding of Glass to Metal (B,C,D,I)

7 1/2 min Sil Col
Source: PSU-EC
(**) (FL)

Frontiers of Friction (B,C)

18 min Snd Col
Source: Shell
(*) (FL)

Hands of the Giants (B,C)

30 min Snd Col
Source: Wyman
(**) (FL)

Photoelastic Studies of Joined Sections in Steel Castings and Weldments (B)

27 min Snd B/W
Source: SFS
(**) (FL)

Resistance Welding Stainless Steels (B)

21 min Snd Col
Source: ALSC
(*) (FL)

Solving Metal Joining Problems through Brazing (B,C)

17 min Snd Col
Source: PSU
(**) (R)

Spotwelding of St 13-03 Deep Drawing Sheet Metal (2 films) (B)

11 min Sil Col
Source: PSU-EC
(**) (R)

Story of Arc Welding (B,C)

24 min Snd Col
Source: BM
(*) (FL)

The Differences in Copper (C)

15 min Snd Col
Source: AMC
(*) (FL)

SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
	Joining (A) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP) Non-Metallic Materials (Volume 3 of a five-part course on Materials Technology) (D,E,G,I) VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA)	

SUBJECT AREA 24 - PROCESSING: FORMING (JOINING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Fundamentals of Silver Alloy Brazing (C) 18 min Snd Col Source: PSU (**) (R)	
	Infab Processing Refractory Metals (C) 15 min Snd Col Source: UCC (**) (FL)	
	Tensile Stress of NiCr20TiAl - PdNi40 High Temperature Soldered Joints (C) 13 min Sil B/W Source: PSU-EC (**) (R)	
	This is Eutalloy (C) 20 min Snd Col Source: EWAC (*) (FL)	
	Welding Advances with Aluminum (C) 28 min Snd Col Source: ACA (*) (FL)	
	Welding Aluminum with Mig & Tig (C) 28 min Snd Col Source: RMC (*) (FL)	

SUBJECT AREA 25 - PROPERTIES: THERMAL

MEDIA

PRINT

Skin of Concord, The (A)
(Section of Open University Course)
Approx 6 hr module, 84 pp
Source: H&R
(*) (P)

Heat-resistant Castings, Corrosion-resistant Castings Their Engineering Properties and Applications (B,C)
Research review module, 60 pp
Source: INCO
(**) (F)

Heat Transfer Through Metallic Walls (B,C)
Research review module, 12 pp
Source: INCO
(**) (F)

Nickel Plating-Processes and Properties of Deposits (C)
Research review module, 64 pp
Source: INCO
(**) (F)

Platinum Group Metals in Industry, The (C)
Research review module, 20 pp
Source: INCO
(**) (F)

16 mm FILM

Concorde (A)
(Section of Open University Course)
25 min Snd Col
Source: H&R (P) & AS (R)
(*)

Cryogenics (A)
30 min Snd B/W
Source: PSU
(**) (R)

High Temperature Materials HQ4 (A)
12 min Snd Col
Source: NASA
(**) (FL)

Photoconductive Effect (A)
16 min Snd B/W
Source: PSU
(**) (R)

Tensile Stress of the NiCr20TiAl Nickel Alloy at Increased Temperatures (C)
9 1/2 min Sil B/W
Source: PSU-EC
(**) (R)

Tensile Stress of NiCr20TiAl-PdNi40 High Temperature Soldered Joints (C)
13 min Sil B/W
Source: PSU-EC
(**) (R)

Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C)
9 1/2 min Sil B/W
Source: PSU-EC
(**) (R)

Carbon and Its Compounds (D)
10 min Snd B/W
Source: PSU
(*) (R)

Fahrenheit 3300 (D)
28 min Snd Col
Source: BM
(*) (FL)

SUPER 8 FILM

Melting Points (A)
r/r 3 min Sil Col
Source: AIM
(*) (P)

Melting Temperature of a Pure Substance (A)
TC, r/r 4 min Sil Col
Source: EFL
(*) (P)

Properties of a Covalently Bonded Molecule (A)
TC 4 min Sil Col
Source: EBEC
(**) (P)

Thermal Expansion of Gases (A)
TC, r/r 4 min Sil Col
Source: EFL
(*) (P)

Thermal Expansion of Liquids (A)
TC, r/r 4 min Sil Col
Source: EFL
(*) (P)

Thermal Expansion of Solids (A)
TC, r/r 4 min Sil Col
Source: EFL
(*) (P)

Propellant Burning Studies (E)
No data Available
Source: JPL
(**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Thermal and Chemical Properties: (A) Thermal Expansion and Conductivity Heat Capacity Energy Changes in Phase Transformations Temperature Effects Electrical Thermal Coupling Heat Treatment 54 Slds 56 min tape Source: Ruoff & PC (**) (P)		
Heat Treatment Series (B,C) 9 Slds No tape Source: ASM (**) (P)		
The Designer's Knowledge of Polymers (Section of Open University Course) (E) 20 min tape only Source: H&R (*) (P)		
Extrusion Theory (E) 22 Slds No tape Col Source: SPE (**) (FL)		
Heat Sealing of Plastic Sheet Material (E) 28 Slds No tape Col Source: SPE (*) (FL)		
Polymers (II): (E) Thermoplastic and Thermosetting Resins 15 Slds 25 min tape Source: Ruoff & PC (**) (P)		
Thermal Analysis (E) 22 Slds No tape Source: SPE (**) (FL)		

SUBJECT AREA 25 - PROPERTIES: THERMAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Heat and Its Control (D) 20 min Snd Col Source: BM (*) (FL) A Problem of Shock (D,G) 9 min Snd Col Source: ASM (*) (R) The Poetry of Polymers (E) 27 min Snd Col Source: NAC (*) (FL)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA

PRINT

Cantilever Flexure (A)
Experiment with pre-gaged beam
Student workbook, Notes for instructor
Approx 2 hr unit
Source: VRE
(*) (P)

Constant Stress Beams (A)
Experiment with pre-gaged beam
Student workbook, notes for instructor
Approx 2 hr unit
Source: VRE
(*) (P)

Fracture Mechanics (A)
Workbook with 2 ATs
Approx 2 hrs
Source: AIAA
(**) (P)

Mechanical Behavior (A)
(Volume 2 of a five-part course on Materials Technology)
Workbook and VTs
11 sessions, approx.2-3 weeks study
Source: SL
(*) (SA)

Modulus of Elasticity-Flexure (A)
Experiment with pre-gaged beam
Student workbook, notes for instructor
Approx 2 hr unit
Source: VRE
(*) (P)

Poissons Ratio-Flexure (A)
Experiment with pre-gaged beam
Student workbook, notes for instructor
Approx 2 hr unit
Source: VRE
(*) (P)

16 mm FILM

Concorde (A)
(Section of Open University Course)
25 min Snd Col
Source: H&R (P) & AS (R)
(*)

Crystals--An Introduction (A)
25 min Snd Col
Source: BTL
(*) (FL)

Dislocations (A)
38 min Snd Col
Source: HJM
(*) (RP)

Dislocations Illustrated (A)
15 min Snd Col
Source: MLS
(*) (RP)

Dislocations in Graphite (A)
25 min Snd Col
Source: Atomics Intl.
(**) (FL)

Eutectic Solidification in Transparent Materials (A)
13 min Sil B/W
Source: BTL
(**) (FL)

Hardness Testing (A)
16 min Snd Col
Source: Purdue
(**) (R)

High Temperature Materials HQ4 (A)
12 min Snd Col
Source: NASA
(**) (FL)

Hooke's Law - Young's Modulus (A)
9 min Snd Col
Source: Purdue
(**) (FL)

SUPER 8 FILM

Crystals--Physical Properties (A)
TC 4 min Sil Col
Source: Thorne
(*) (P)

Solid Solutions (C)
TC 4 min Sil B/W
Source: SET R
(*) (P)

Plastics (E)
TC 4 min Sil Col
Source: LONG
(*) (P)

Polymer Science (3 films) (E)
TC 4 min Sil Col
Source: ACCC
(**) (P)

MEDIA

SLIDE/TAPE

Dislocations (A)

28 Slds No tape
From 16 mm film of same title (q.v.)
Source: HJM
(*) (P)

Fracture Mechanics (A)

Tape only with workbook
Approx. 2 hours
Source: AIAA
(**) (P)

How to Apply Photoelastic Coatings (A)

60 Slds No tape
Approx. 2 hour unit Col
Source: VRE
(*) (P)

How to Install Strain Gages with Certified M-Bond 200 Adhesive (A)

60 Slds No tape
Approx. 2 hour unit Col
Source: VRE
(*) (P)

Mechanical Properties: Flow and Internal Friction (A)

13 Slds 19 min tape
Source: Ruoff & PC
(**) (P)

Micro- and Macro-Structure: Composite Materials (I)

53 Slds 41 min tape
Source: Ruoff & PC
(*) (P)

New Materials (Section of Open University Course) (A)

20 min tape only
Source: H & R
(*) (P)

Phase Diagrams (I): Age Precipitation Hardening (C)

36 Slds 53 min tape
Source: Ruoff & PC
(*) (P)

VIDEO TAPE

Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Basic Strength and Mechanics of Materials for Draftsmen and Designers (A Course) (A)

20 VT's each 1 hour in length
3/4" Cassette Snd B/W
111 page study book
Source: GSI
(*) (RP)

Internal Structure (Lesson 1) Introduction to Materials Science (set of 16 VT's) (A)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

Introduction to Engineering Materials (A Course) (A)

23 VTs each 1 hour Snd B/W
3/4" Cassette
Source: GSI
(*) (RP)

Mechanical Behavior of Solids (A Course) (A)

24 VTs each 50 min Snd B/W
3/4" Cassette & 2" Quad
Source: UIUC
(*) (P)

Strength of Materials (A Course for Engineers) (A)

22 VT's each 1 hour Snd B/W
3/4" Cassette
149 page study book
Source: GSI
(*) (RP)

Structure-Property Relationships in Single-Phase Metals I (Lesson 12) Introduction to Materials Science (set of 16 VT's) (B,C)

Approx. 30 min Snd Col
3/4" Cassette
Source: UWEX
(*) (P)

OTHER

Stress and Strain Concentration (A)

32 OT's in color, Teaching Manual
Approx 2 hour unit
Source: VRE
(*) (P)

Stress and Strain at a Point (A)

26 OT's in color, Teaching Manual
Approx 2 hour unit
Source: VRE
(*) (P)

Tension Test (A lab experiment) (A)

Objective: Determine tensile stress-strain properties for variety of materials.

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

Brittle to Ductile Transition (A lab experiment) (B,C)

Objective: To study the transition to brittle behavior in materials as a function of temperature.

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

Hardness Test (A lab experiment) (B,C)

Objective: To study the indentation hardness of various metals.

One of 23 lab experiments offered in NSF Report and under Grant GY-4709 available from author
Source: JR
(*) (F)

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Principal Strains and Stresses-Flexure (A) Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)	Properties of Materials (A) Series of six films 1. Loads on Structures 2. Behavior of Structural Materials 3. Tensile and Compressive Structures 4. Beams and Frames 5. Grids and Plates 6. Membranes and Shells 20 min (ea.) Snd Col Source: McGraw Hill (*) (P)	
Skin of Concorde, The (A) (Section of Open University Course) Approx 6 hr module, 84 pp Source: H&R (*) (P)	Response to Mechanical Shock (A) 18 min Snd Col Source: SI, AEC (**) (FL)	
Solids Under Stress (A) (Section of Open University Course) Approx 6 hr module, 56 pp Source: H&R (*) (P)	Scanning Fractures with the Electron Microscope (A) 15 min Snd Col Source: MCIC (*) (R)	
Stress and Strain Concentration (A) Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)	Strength of Materials Laboratory (A) Series of ten films 1. Deformations and Strains 2. Loads and Stresses 3. Tension Test, Part I 4. Tension Test, Part II 5. Compression and Buckling 6. Bending 7. Torsion 8. Hardness and Impact Tests 9. Creep 10. Fatigue 10 - 15 min Snd Col Source: McGraw Hill (*) (P)	
Strong Materials: Electrons and Waves (A) (Section of Open University Course) Approx 6 hr module, 104 pp Source: H&R (*) (P)	Tensile and Compressive Structures (A) 27 min Snd Col Source: PSU (**) (R)	
Alloy Design, Using Second Phases (B,C) Research review module, 24 pp Source: INCO (**) (F)	Tensile Testing (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)	
Application and Design of Ductile Iron Drawing and Forming Dies, The (B.C) Research review module, 8 pp Source: INCO (**) (F)		

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Photoelastic Coating - Case Histories (A) 60 Slds No tape Approx. 2 hour unit Col Source: VRE (*) (P)	Structure-Property Relationships in Single-Phase Metals II (Lesson 13) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Heat Treatment of Steel (A lab experiment) (B) Objective: To study the effect of cooling rate on the hardness and microstructure of a low and high carbon steel. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
Photoelastic Models - Case Histories (A) 60 Slds No tape Approx. 2 hour unit Col Source: VRE (*) (P)	Structure-Property Relationships in Multiphase Alloys (Lesson 16) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Microstructure Examination (A lab experiment) (B,C) Objective: To study the microstructure of a variety of single-phase materials One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F)
Properties and Relevance of Materials (A) 29 Slds 40 min tape Source: Ruoff & PC (*) (P)	Structure-Sensitive Properties (Lesson 2) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Tool Wear (A lab experiment) (B) Objective: To measure flank wear on a cutting tool during a turning test. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
Strengthening Mechanisms (I) (A) Degree and Limits of Strength Weakness of Bulk Materials Strengthening Concepts Solute Strengthening Strain Hardening Strengthening by Grain Boundaries Second Phase Strengthening 44 Slds 57 min tape Source: Ruoff & PC (*) (P)	Polymers (Lesson 8) Introduction to Materials Science (set of 16 VT's) (E) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Bending (A lab experiment) (C) Objective: To measure the force-penetration curve on bending and compare to analysis. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
Strengthening Mechanisms (II) Martensitic Transformations (B) Strengthening at High Temperatures (A) Strengthening in Polymers (E) Strengthening of Viscous Matrices (D,I) 16 Slds 37 min tape Source: Ruoff & PC (**) (P)	Polymer Science (E) Herman Mark presents the Fundamentals of Polymer Science 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	
Heat Treatment Series (B,C) 9 Slds No tape Source: ASM (**) (P)	Applied Plasticity (A Course) (A) 24 VT's each 1 hour Snd B/W 3/4" Cassette Source: GSI (**) (RP)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Basic Metallurgy (B,C) (A programmed technical mini-course) Approx 1 weeks study, 260 pp Source: ASM (*) (P) Brittle Fracture and Structural Failure of Liberty Ships During WW II (B) (Case Study) 57 pp. Order No. ECL 1007 (From Engineering Case Library) Source: ECP (*) (P) Development of a Cast Monoform Turbine Wheel, The (B) (Case Study) 30 pp, Order No. ECL 183 (From Engineering Case Library) Source: ECP (**) (P) Development of a New Drill Steel (B) (Case Study) 20 pp, Order No. ECL 94 (From Engineering Case Library) Source: ECP (*) (P) Fracture of a Marine Gear Rim (B) (Case Study) 31 pp, Order No. ECL 80 (From Engineering Case Library) Source: ECP (*) (P) Fundamentals of Indentation Hardness Testing (B,C) (A programmed technical mini-course) Approx 1 weeks study, 171 pp Source: ASM (*) (P)	Tension Testing (A) 21 min Snd B/W Source: NAC (*) (RP) A World of Structures (A) 20 min Snd Col Source: McGraw Hill (*) (P) Advanced Technology in Specialty Steel (B) 14 min Snd Col Source: UCC (**) (FL) Blacksmith for the Stars (B,C) 17 min Snd Col Source: Wyman (*) (FL) Chemistry of Iron and Steel (1 of a series of 5) (B) 14 min Snd Col Source: USS (*) (FL) Concepts of Dislocations (B,C) 7 min Snd Col Source: PSU (**) (R) Deformation of Crystalline Materials (Part I) (B,c) 5 min Snd Col Source: PSU (**) (R) Deformation of Crystalline Materials (Part II) (B,C) 6 min Snd Col Source: PSU (**) (R) Drama of Steel (B) 34 min Snd Col Source: BM (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Mechanical Properties: Deformation (B,C) 29 Slds 46 min tape Source: Ruoff & PC (*) (P) Fiberglass Reinforced Plastics (D,E,I) 38 Slds No tape Col Source: SPE (**) (FL) A Breakdown in Plastics (E) AT only No time given Source: ACS (*) (P) New Dimensions for Polymers (E) AT only No time given Source: ACS (*) (P) The Fabulous Necklace (E) 99 Slds Col 18 min tape Source: U of A (*) (FL) Foam Construction (E) 36 Slds No tape Col Source: SPE (*) (FL)	Glass (Lesson 9) Introduction to Materials Science (set of 16 VT's) (G) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P) Non-Metallic Materials (Volume 3 of a five-part course on Materials Technology) (D,E,G,I) VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA) Mechanical Behavior (Volume 2 of a five-part course on Materials Technology) (A) VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA) Materials Science: The Relationships between Structure and Properties (A) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	Cold Work - Anneal (A lab experiment) (C) Objective: To measure changes in mechanical properties during cold work and annealing of cartridge brass. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Creep of Metals (A lab experiment) (C) Objective: To study creep deformation of metals One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Precipitation Hardening (A lab experiment) (C) Objective: To study precipitation hardening in Muntz metal One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F) Sintering (A lab experiment)(C) Objective: To study the effect of sintering on the hardness of metal compacts. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available form author Source: JR (*) (F)

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Material-Selection and Casting Problems of a High-Vacuum Coupling (B) (Case Study) 49 pp, Order No. ECL 59 (From Engineering Case Library) Source: ECP (**) (P) Mechanical and Physical Properties of the Austentitic Chromium-Nickel Stainless Steels at Ambient Temperatures (B,C) Research review module, 44 pp Source: INCO (**) (F) Metal Implants for Orthopedic and Dental Surgery (B,J) 55 page report, 47 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P) Nickel in Gray Iron-Influence on Structure and Properties (B,C) Research review module, 16 pp Source: INCO (**) (F) Pickel Pasteurizer Shaft Failure (B) (Case Study) 12 pp, Order No. ECL 152 (From Engineering Case Library) Source: ECP (*) (P) Problem of the Perverse Pinion (B) (Case Study) 18 pp, Order No. ECL 135 (From Engineering Case Library) Source: ECP (*) (P) Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study)	Elements of Hardening (B) 15 min Snd B/W Source: PSU (**) (R) Elements of Surface Hardening (B) 14 min Snd B/W Source: PSU (**) (R) Fun in Metals (B,C) 35 min Snd Col Source: ASM (*) (R) Grease, The Magic Film (B,C) 26 min Snd Col Source: NLGI (*) (FL) Heat Treatment of Steel (B) 34 min Snd Col Source: OSU (**) (R) How Metals Behave (B,C) 30 min Snd Col Source: ASM (*) (R) Introduction to Strengthening Materials (B,C) 6 min Snd Col Source: PSU (**) (R) Men, Steel and Earthquakes (B) 28 min Snd Col Source: AISC (*) (FL) Metal Crystals in Action (B,C) 30 min Snd Col Source: ASM (*) (R) Solving Metal Joining Problems through Brazing (B,C) 17 min Snd Col Source: PSU (**) (R)	

MEDIA

SLIDE/TAPE

Foams in Packaging (E)

27 Slds No tape Col
Source: SPE
(*) (FL)

Microwave Curing (E)

24 Slds No tape Col
Source: SPE
(*) (FL)

Polysulfide Elastomers (E)

10 Slds No tape
Source: SPE
(**) (FL)

Rubber Elastomers (E)

29 Slds No tape
Source: SPE
(*) (FL)

Silicone Elastomers (E)

18 Slds No tape
Source: SPE
(**) (FL)

Stress Analysis (E)

16 Slds No tape
Source: SPE
(**) (FL)

How Wood Dries (H)

30 min tape
76 Slds
Source: SFOSU
(*) (RP)

Penetration of Liquids into Wood (H)

20 min tape
80 Slds
Source: SFOSU
(*) (RP)

Pressure Wood-Preserving Processes (H)

24 min tape
119 Slds
Source: SFOSU
(*) (RP)

VIDEO TAPE

OTHER

Plastics - Their Use in Manufacturing (E)
Course consisting of:
- 8 Packets of hands on material
- 1 On the job handbook
- 1 Exhibit book
- 2 Programmed texts

Approx 10 weeks of study
Source: SME
(**) (P)

Viscoeleastic Behavior (A lab experiment) (E)

Objective: To study viscoelastic behavior in silicone putty.

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

Strength of Glass (A lab experiment) (G)

Objective: To study the effect of surface treatment on the strength of glass

One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author
Source: JR
(*) (F)

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study) 35 pp, Order No. ECL 72 (From Engineering Case Library) Source: ECP (*) (P)	Special Properties of Stainless Steel (B) 40 min Snd Col Source: RSC (*) (FL)	
Role of Nickel in Carburizing Steel, The (B,C) Research review module, 12 pp Source: INCO (**) (F)	Stainless Steel: Specific properties of 3-classes of stainless steels (one of a series) (B) 40 min Snd Col Source: RSC (*) (FL)	
Strengthening Mechanisms in Nickel-Base Superalloys (B,C) Research review module, 28 pp Source: INCO (**) (F)	Story of Stainless Steel (B) 27 min Snd Col Source: MTPS (*) (FL)	
Transformer Core (B) (Section of Open University Course) Approx 6 hr module, 92 pp Source: H&R (*) (P)	Story of the Chilled Car Wheel (B) 38 min Snd Col Source: Purdue (*) (R)	
Platinum--The Metal, Its Properties and Applications (C) Research review module, 28 pp Source: INCO (**) (F)	Tensile Stress of Deep-drawing St VII 23 Sheet Metal (B) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	
Platinum Group Metals in Industry, The (C) Research review module, 20 pp Source: INCO (**) (F)	Tensile Stress of GGG-50 Cast Iron (B) 5 min Sil B/W Source: PSU-EC (**) (R)	
Ceramics for Prosthetic Applications (D,J) 30 page report, 6 figures and tables, related to film, Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P)	Tensile Stress of Notched Flatbars (B,F) 11 min Sil Col Source: PSU-EC (**) (R)	
Failure of a Rotating Mirror (D,G) (Case Study) 28 pp, Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P)	Tension Testing (B) 21 min Snd Col Source: Purdue (*) (R)	
	Tool Steel for Cold Work (B) 16 min Snd Col Source: MTPS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Wood Structure (H) 35 min tape 114 Slds Source: SFOSU (*) (RP)		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Non-Metallic Materials (D,E,G,I) (Vol. 3 of a five-part course on Materials Technology) Workbook and VTs 11 sessions, approx 2-3 weeks study Source: SL (*) (SA) Chemistry of Macromolecules (E) (One of three modules in an ACS Interactive Course designed primarily for continuing education. Course title: Polymer Science and Technology) Approx 3-4 weeks study time (128 pp of text plus some 50 pp of work assign.) Source: ACS (**) (P) Flippin' Motorbike, The (E) (Case Study) 11 pp, Order No. ECL 148 (From Engineering Case Library) Source: ECP (*) (P) Fundamentals of Plastics, The (E) (A programmed technical mini-course) Approx one weeks study, 144 pp Source: ASM (*) (P) Plastics--Their Use in Manufacturing (E) Course consisting of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials Approx 10 weeks study Source: SME (**) (P) Spontaneous Fracture (E) (Case Study) 18 pp, Order No. ECL 169 (From Engineering Case Library) Source: ECP (*) (P)	Trip Steel (B) 11 min Snd Col Source: AEC (**) (FL) The Use and Care of Twist Drills (B) 23 min Snd Col Source: MTPS (*) (FL) Atomic Metallurgy (C) 18 min Snd Col Source: AEC (**) (FL) Chemistry of Aluminum (C) 16 min Snd Col Source: RMC (*) (FL) Control (C) 23 min Snd Col Source: FSI (**) (FL) Copper! (C) 37 min Snd Col Source: Assoc. Films (*) (FL) The Differences in Copper (C) 15 min Snd Col Source: AMC (*) (FL) Dislocations in Alpha Brass (C) 15 min Sil Col Source: M&R (**) (FL) Dislocation Movements (C) 9 min Sil B/W Source: PSU-EC (**) (R) Fatigue Test (C) 3 1/2 min Sil B/W Source: PSU-EC (**) (R)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Heat Treatment of Aluminum: Part I (C) 19 min Snd B/W Source: PSU (**) (R) Heat Treatment of Aluminum Part II (C) 24 min Snd B/W Source: PSU (**) (R) The Lead Matrix (C) 27 min Snd Col Source: ASF, BM, LIA (*) (FL) Micro-deformation of Uranium (C) 17 min Snd Col Source: AEC (**) (FL) Tensile Stress of High Purity Aluminum Al 99, 99R (C) 9 min Sil B/W Source: PSU-EC (**) (R) Tensile Stress of the NiCr20Ti-Al Nickel Alloy at Increased Temperatures (C) 9 1/2 min Sil B/W Source: PSU-EC (**) (R) Tensile Stress of NiCr20TiAl - PdNi40 High Temperature Soldered Joints (C) 13 min Sil B/W Source: PSU-EC (**) (R) Tensile Stress of Pure Annealed Zinc Zn99, 99 (C) 8 min Sil B/W Source: PSU-EC (**) (R) Tensile Stress of Pure Rolled Zinc Zn99,99 (C) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C) 9 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Tensile Stress of Sf-Cu Copper (C) 8 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Torsional Strain in Metals (C) (2 films - with and without Snd) 11 - 12 min B/W Source: PSU-EC (**) (R)	
	The Working of Magnesium (C) 20 min Snd Col Source: Dow (**) (FL)	
	Carbon and Its Compounds (D) 10 min Snd B/W Source: PSU (*) (R)	
	Ceramics and Electronics (D) 22 min Snd Col Source: PSU (**) (R)	
	Cutting of Glass with a Diamond Cutting Tool (D,G) 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Deformation of Glass with Scratching Tools - (Various Phenomena) (3 films in all) (D,G) 4 - 5 min Sil B/W Source: PSU-EC (**) (R)	
	Engineering with Glass (D,G) 28 min Snd Col Source: ASF (*) (FL)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	PPG: Glass for the Seventies (D,G) 12 min Snd Col Source: MTPS (*) (FL)	
	Tensile and Bending Stress in Glass Fiber Reinforced Synthetics (D,E,G,I) 9 min Sil Col Source: PSU-EC (**) (R)	
	For Every Wheel That Rolls (E) 26 min Snd Col Source: ASF (*) (FL)	
	Machining of Hard Polyvinylchloride (E) 4 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Machining of 6 Polyamide (E) 7 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Machining of Type Vf 3110 Vulcanized Fiber (E) 7 min Sil B/W Source: PSU-EC (**) (R)	
	Naturally, It's Rubber (E) 24 min Snd Col Source: MRB (*) (FL)	
	Origin and Synthesis of Plastics Materials (E,I) 16 min Snd B/W Source: PSU (**) (R)	
	Our Polymer World (E) 22 min Snd Col Source: Polysar (*) (FL)	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Physical Chemistry of Polymers (E) 22 min Snd Col Source: BTL (**) (FL)	
	The Poetry of Polymers (E) 27 min Snd Col Source: NAC (*) (FL)	
	Polysulfides for Industry (E) 18 min Snd Col Source: Thiokol (*) (FL)	
	Report on Du Pont Elastomers (E) 29 min Snd Col Source: DDC (*) (FL)	
	Rubber by Design (E) 27 min Snd Col Source: SFL (*) (FL)	
	The Way it is with Man-Made Fibers (E) 27 min Snd Col Source: DDC (*) (FL)	
	Looking at Materials: #2: Composites (I) 30 min Snd B/W Source: PSU (**) (R)	

SUBJECT AREA 27 - PROPERTIES: ACOUSTIC

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Solar Cells (F) (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)		

SUBJECT AREA 28 - PROPERTIES: OPTICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Failure of a Rotating Mirror* (D,G) (Case Study) 28 pp, Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P)	The Conquest of Light (Laser) (A) 10 min Snd Col Source: BTL (*) (FL)	Crystals-Optical Properties (A) TC 3 min Sil Col Source: Thorne (**) (P)
	Introduction to Lasers (A) 17 min Snd Col Source: BTL (*) (FL)	Streaming Birefringence (A) TC, r/r 4 min Sil Col Source: Wiley (**) (P)
	The Laser, A Light Fantastic (A) 21 min Snd Col Source: PSU (*) (R)	
	Laser - The Light of the Future (A) 30 min Snd B/W Source: PSU (**) (R)	
	Laser Safety (A) 19 min Snd Col Source: PSU (*) (R)	
	Lasers Unlimited (A) 10 min Snd Col Source: BTL (*) (FL)	
	Photoconductive Effect (A) 16 min Snd B/W Source: PSU (**) (R)	
	Principles of the Optical Maser (A) 30 min Snd Col Source: BTL (*) (FL)	
	Fiber Optics (D,E) 30 min Snd B/W Source: PSU (**) (R)	
	Looking at Materials #5: Ceramics (D) 30 min Snd B/W Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Optical Communications (A) AT only No time given Source: ACS (*) (P)	Fiber Optics (D,E) 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P)	
Electrons in Condensed Phases (II): Lasers (A) 20 Slds 40 min tape Source: Ruoff & PC (**) (P)	Optoelectronics (A two-part course) (F) Part 1-Optoelectronic Emitters, Sensors and Couplers Part 2-Optoelectronic Displays 18 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Liquid Crystals: A Bright Promise (K) AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 28 - PROPERTIES: OPTICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Solar Cells (Section of Open University Course) (F) 25 min Snd Col Source: H&R (P) AS (R) (*) Solar Cells-The Physics (Section of Open University Course) (F) 25 min Snd B/W Source: H&R (P) AS (R) (*)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Materials for Light-Duty Electrical Contacts (C) Research review module, 16 pp Source: INCO (**) (F)	Capacitance (A) 31 min Snd B/W Source: PSU (*) (R)	Acceleration of Charge Carriers (F) TC 2 min Sil Col Source: SETCO (**) (P)
Ordinary Electronic Properties of Metals (C,F) A Resource Letter, Vol. 36, No. 9, 12 pp Source: AJP/ATP (**) (P)	Field Emission of Electrons (A) 4 min Snd B/W Source: PSU (**) (R)	The Assymetrical P-N Junction (F) TC 2 min Sil Col Source: SETCO (**) (P)
Electrons in Solids (F) (Section of Open University Course) Approx. 6 hr module, 64 pp Source: H&R (*) (P)	Introduction to Superconductivity (A) 48 min Snd B/W Source: PSU (**) (R)	The Barrier Width of a Crystal Diode (F) TC 2 min Sil Col Source: SETCO (**) (P)
Solar Cells (F) (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)	Natural Gas Fuel Cell (A) 20 min Snd Col Source: BUG (*) (FL)	Conduction in N- and P- Type Crystals (F) TC 2 min Sil Col Source: SETCO (**) (P)
Electronic Materials (F) (Volume 4 of a five-part course on Materials Technology) Workbook and video tapes 8 sessions, approx 2 weeks study Source: SL (*) (SA)	Shapes and Polarities of Molecules (A) 18 min Snd Col Source: PSU (**) (R)	Conduction in Pure Crystals (F) TC 1 min Sil Col Source: SETCO (**) (P)
	Silicon and Its Compounds (A) 14 min Snd Col Source: PSU (**) (R)	The Equilibrium State of the P-N Junction (F) TC 2 min Sil Col Source: SETCO (**) (P)
	Temperature and Matter (A) 15 min Snd Col Source: PSU (*) (R)	The Formation of a Barrier in a P-N Crystal (F) TC 2 min Sil Col Source: SETCO (**) (P)
	Fun in Metals (B,C) 35 min Snd Col Source: ASM (*) (R)	The Formation of N-Type Crystals (F) TC 2 min Sil Col Source: SETCO (**) (P)
	The Hall Effect (B,C,F) 9 min Snd Col Source: PSU (**) (R)	The Formation of P-Type Crystals (F) TC 2 min Sil Col Source: SETCO (**) (P)
	How Metals Behave (B,C) 30 min Snd Col Source: ASM (*) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Electric Properties: Ohm's Law (A) Hall Coefficient (A) Metals and Semiconductors (B,F) Insulators (D) Special Dielectrics (D) 30 Slds 49 min tape Source: Ruoff & PC (**) (P)	Designing with Microprocessors (A Course) (F) 16 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Electro Chemical Properties (A) Half Cell Potentials Polarization and Overvoltage 22 Slds 46 min tape Source: Ruoff & PC (*) (P)	Linear and Interface Integrated Circuits (A two-part course) (F) Part 1-Linear Integrated Circuits Part 2-Interface Integrated Circuits 20 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Electrons in Condensed Phases (I) (A) Conductivity 24 Slds 49 min tape Source: Ruoff & PC (**) (P)	MOS Integrated Circuits (A Course) (F) 20 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Superconductivity: (A) Superconducting State and Fundamental Concepts Collective De Broglie Wave Magnetic Flux Quantization Type I vs Type II Superconductors Fluxoid Pinning 31 Slds 37 min tape Source: Ruoff & PC (**) (P)	Optoelectronics (A two-part course) (F) Part 1-Optoelectronic Emitters, Sensors and Couplers Part 2-Optoelectronic Displays 18 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Thermal and Chemical Properties (A) Electrical Thermal Coupling 54 Slds 56 min tape Source: Ruoff & PC (**) (P)	Semiconductor Memories (A Course) (F) 11 VT's each 1 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
Electrical and Magnetic Properties Series (B,C,F) 21 Slds No tape Source: ASM (**) (P)	Understanding Semiconductors (A Course) (F) 12 VT's each 1 hour Snd Col 3/4" Cassette Source: TI (*) (P)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA

PRINT

Electronic Materials (F)
(Volume 4 of a five-part course on Materials Technology)

Workbook and VTs
8 sessions, approx 2 weeks study
Source: SL
(*) (SA)

Electrons in Solids (F)
(Section of Open University Course)

Approx 6 hr module, 64 pp
Source: H&R
(*) (P)

Solar Cells (F)
(Section of Open University Course)

Approx 6 hr module, 136 pp
Source: H&R
(*) (P)

16 mm FILM

The Transformer Core I (Section of Open University Course) (B)

25 min Snd B/W
Source: H&R (P) & AS (R)
(*)

The Transformer Core II (Section of Open University course) (B)

25 min Snd B/W
Source: H&R (P) & AS (R)
(*)

The Differences in Copper (C)

15 min Snd Col
Source: AMC
(*) (FL)

Domain Structures in Superconductors (C)

5 min Sil B/W
Source: PSU-EC
(**) (R)

Extra High Voltage Cables (C)

15 min Snd Col
Source: RMC
(*) (FL)

Ceramics and Electronics (D)

22 min Snd Col
Source: PSU
(**) (R)

Brattain on Semiconductor Physics (F)

30 min Snd B/W
Source: BTL
(**) (FL)

Breakthrough (F)

9 min Snd Col
Source: WEC
(*) (FL)

Dynamic Field Distributions in Gunn-Effect Devices (F)

12 min Sil B/W
Source: BTL
(**) (FL)

SUPER 8 FILM

Generation of Charge Carriers (F)

TC 1 min Sil Col
Source: SETCO
(**) (P)

Light and Electrons (F)

TC 4 min Sil B/W
Source: EBEC
(*) (P)

The P-N-P Crystal (F)

TC 2 min Sil Col
Source: SETCO
(**) (P)

Recombination of Charge Carriers (F)

TC 1 min Sil Col
Source: SETCO
(**) (P)

Rectification of Crystal Diodes (F)

TC 2 min Sil Col
Source: SETCO
(**) (P)

The Transistor (F)

TC 2 min Sil Col
Source: SETCO
(*) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Magnetic Properties (C) Superconductors 30 Slds 39 min tape Source: Ruoff & PC (**) (P) Electrons in Condensed Phases (II): Intrinsic Semiconductors (F) Extrinsic Semiconductors (F) P-N Junction (F) Junction Transistor (F) 20 Slds 40 min tape Source: Ruoff & PC (**) (P) Liquid Crystals: A Bright Promise (K) AT only No time given Source: ACS (*) (P)	Electronic Materials (Volume 4 of a five-part course on Materials Technology) (F) VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Electric Field and Carrier Density in a Bulk N-Gallium Arsenide Diode (F) 5 min Sil B/W Source: BTL (**) (FL)	
	Gap Energy and Recombination Light in Germanium (F) 37 min Snd B/W Source: PSU (**) (R)	
	Genesis of the Transistor (F) 15 min Snd Col Source: BTL (*) (FL)	
	I. C. A Shrinking World (F) 16 min Snd Col Source: BTL (*) (FL)	
	Integrated Electronics-A New Art (F) 16 min Snd Col Source: BTL (*) (FL)	
	An Interview with the Transistor's Inventors (F) 14 min Snd Col Source: BTL (*) (FL)	
	Low-Energy Electron Diffraction from Germanium (100) and (111) Surfaces (F) 15 min Sil B/W Source: BTL (**) (FL)	
	Micro (F) 14 min Snd Col Source: MTPS, WEC (*) (FL)	
	Minority Carriers in Semiconductors (F) 26 min Snd B/W Source: PSU (**) (R)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Modern Transistor Fabrication (F) 35 min Snd Col Source: BTL (*) (FL)	
	Principles of the Transistor (F) 21 min Snd B/W Source: PSU (*) (R)	
	Printed Circuit Story (F) 16 min Snd Col Source: PSU (*) (R)	
	Semi-Conductors: Part I (F) 21 min Snd B/W Source: PSU (**) (R)	
	Semi-Conductors: Part II (F) 22 min Snd B/W Source: PSU (**) (R)	
	Solar Cells-The Physics (Section of Open University Course) (F) 25 min Snd B/W Source: H&R (P) AS (R) (*)	
	Solar Cells (Section of Open University Course) (F) 25 min Snd Col Source: H&R (P) AS (R) (*)	
	Superconductivity (An Introduction to) (F) 48 min Snd Col Source: MSU (**) (R)	
	Superconductivity (F) 10 min Snd Col Source: IBM (**) (FL)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Transistor (F) 27 min Snd Col Source: BTL (*) (FL) The Transistor (F) 9 min Snd B/W Source: BTL (*) (FL)	

SUBJECT AREA 30 - PROPERTIES: MAGNETIC

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Transformer Core (B) (Section of Open University Course) Approx. 6 hr module, 92 pp Source: H&R (*) (P)	Temperature and Matter (A) 15 min Snd Col Source: PSU (*) (R)	Ferromagnetic Domain Wall Motion (B) TC, r/r 4 min Sil Col Source: SET Q (**) (P)
Electronic Materials (F) (Volume 4 of a five-part course on Materials Technology) Workbook and video tapes 8 sessions, approx 2 weeks study Source: SL (*) (SA)	Domains and Hysteresis in Ferromagnetic Materials (B) 38 min Snd Col Source: BTL (**)	
	Ferromagnetic Domains: (B) Part I-Magnetism and Domains Part II-How Domains are Formed (B) 22 min Snd Col Source: BTL (**) (FL)	
	Ferromagnetic Domains of Bulk Crystals: (B) 1. FeSi Single Crystal in a Rotating Field, FeSi Polycrystal in an Alternating Field 5 min 2. Magnetic Reversal of a (100)-FeSi Single Crystal 9 1/2 min 3. Magnetic Reversal of an (110)-FeSi Single Crystal 5 1/2 min Sil B/W Source: PSU-EC (**) (R)	
	Ferromagnetic Films: (B) 1. Barkhausen Effect 5 min 2. Wall Creep 10 min 3. Wall Fluctuation 8 min Sil B/W Source: PSU-EC (**) (R)	
	Formation of Ferromagnetic Domains (B) 40 min Snd Col Source: BTL (**) (FL)	
	Fun in Metals (B,C) 35 min Snd Col Source: ASM (*) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Superconductivity: (A) Magnetic Flux Quantization 31 Slds 37 min tape Source: Ruoff & PC (**) (P) Electrical and Magnetic Properties Series (B,C,F) 21 Slds No tape Source: ASM (**) (P) The Formation of Ferromagnetic Domains (B) 132 Frms FS 45 min Col 2 33 1/3 rpm discs Source: BTL (**) (FL) Magnetic Properties: Soft Ferromagnetics (B,D) Hard Magnetic Materials (B) Special Magnetic Materials (B,I) Superconductors (C) 30 Slds 39 min tape Source: Ruoff & PC (**) (P) Magnetism (B,C) Diamagnetism, Paramagnetism Ferromagnetism, Antiferromagnetism Ferrimagnetism Domains and Magnetism According to Domain Theory Magnetic Bubbles 44 Slds 54 min tape Source: Ruoff & PC (**) (P)	Electronic Materials (Volume 4 of a five-part course on Materials Technology) (F) VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA)	

SUBJECT AREA 30 - PROPERTIES: MAGNETIC

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	How Metals Behave (B,C) 30 min Snd Col Source: ASM (*) (R)	
	Magnetic Reversal of Ferromagnetics (B,C) 7 min Sil B/W Source: PSU-EC (**) (R)	
	Permanent Magnets (B,C) 18 min Snd Col Source: CIC (*) (FL)	
	The Transformer Core I (Section of Open University Course) (B) 25 min Snd B/W Source: H&R (P) & AS (R) (*)	
	The Transformer Core II (Section of Open University Course) (B) 25 min Snd B/W Source: H&R (P) & AS (R) (*)	
	Superconducting Magnets (C) 12 1/2 min Snd Col Source: AEC (**) (FL)	

SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
The Fundamentals of Adhesive Bonding (A) (A programmed technical mini-course) Approx. one week's study, 117 pp. Source: ASM (*) (P)	Catalysis (A) 16 min Snd Col Source: PSU (**) (R)	Corrosion I--Filiform Corrosion (B,C) TC, r/r 4 min Sil Col Source: Wiley (*) (P)
Corrosion Testing of Electrodeposited Coatings (B,C) Research review module, 8 pp Source: INCO (**) (F)	Shapes and Polarities of Molecules (A) 18 min Snd Col Source: PSU (**) (R)	Corrosion II--Hydrogen Embrittlement (B,C) TC, r/r 4 min Sil Col Source: Wiley (*) (P)
Guidelines for Selection of Marine Materials (B,C) Research review module, 40 pp Source: INCO (**) (F)	Adhesion-Bonding of Glass to Metal (B,C,D,I) 7 1/2 min Sil Col Source: PSU-EC (**) (R)	Corrosion III--Aluminum (B,C) TC, r/r 4 min Sil Col Source: Wiley (*) (P)
Heat-resistant Castings, Corrosion-resistant Castings, Their Engineering Properties and Applications (B,C) Research review module, 60 pp Source: INCO (**) (F)	Corrosion of Pure Iron--Initial Stages (B) 8 min Sil B/W Source: PSU (**) (R)	Polymer Science (3 films) (E) TC 4 min Sil Col Source: ACCC (**) (P)
Heat Transfer Through Metallic Walls (B,C) Research review module, 12 pp Source: INCO (**) (F)	Filament Corrosion - Plain Steel in Humid Atmosphere (B) 9 1/2 min Sil Col Source: PSU-EC (**) (R)	
Materials Degradation (B,C) (Volume 5 of a five-part course on Materials Technology) Workbook and VT's 5 sessions, approx. 1 week's study Source: SL (*) (SA)	Flow Dependent Corrosion - Plain Steel in Aqueous Salt Solutions (B) 3 1/2 min Sil Col Source: PSU-EC (**) (R)	
Metals and Corrosion (B,C) Research review module, 12 pp Source: INCO (**) (F)	Hot Dip Galvanizing After Fabrication (B) 12 min Snd Col Source: AHDGA (*) (FL)	
Nickel in Gray Iron - Influence on Structure and Properties (B,C) Research review module, 16 pp Source: INCO (**) (F)	Metals and Nonmetals (B,C,D) 11 min Snd B/W Source: PSU (**) (R)	
	Pitting (B) 9 min Snd B/W Source PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Corrosion Series (A) 17 Slds No tape Source: ASM (**) (P)	Joining (A) 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)	
Electro Chemical Properties (A) Half Cell Potentials Polarization and Overvoltage Corrosion and Protection Against Corrosion 22 Slds 46 min tape Source: Ruoff & PC (*) (P)	Polymer Science (E) Herman Mark presents the Fundamentals of Polymer Science 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	
How to Install Strain Gages with Certified M-Bond 200 Adhesive (A) 60 Slds No tape Approx. 2 hour unit Col Source: VRE (*) (P)	Materials Degradation (Volume 5 of a five-part course on Materials Technology) (B,C) VT's and workbook 5 sessions, approx. 1 week's study Source: SL (*) (SA)	
Thermal and Chemical Properties (A) Chemical Properties 54 Slds 56 min tape Source: Ruoff & PC (**) (P)	Corrosion in Hamilton - A TV Field Trip (B,C) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
Chemistry of Iron (B) 35 Frms FS No tape Col Source: EPS (*) (FL)		
Chemistry of Steel (B) 50 Frms FS No tape Col Source: EPS (*) (FL)		
A Breakdown in Plastics (E) AT only No time given Source: ACS (*) (P)		
New Dimensions for Polymers (E) AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Ocean Engineering Hardware Requires Copper-Nickel Alloys (B,C) Research review module, 36 pp Source: INCO (**) (F) Redesign of a Liquid Nitrogen Container (B,C,E) (Case study) 35 pp, Order No. ECL 72 (From Engineering Case Library) Source: ECP (*) (P) Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid (B,C) Research review module, 44 pp Source: INCO (**) (F) Nickel Plating - Processes and Properties of Deposits (C) Research review module, 64 pp Source: INCO (**) (F) Platinum - The Metal, Its Properties and Applications (C) Research review module, 28 pp Source: INCO (**) (F) Chemistry of Macromolecules (E) One of 3 modules in an ACS Interactive Course designed primarily for continuing education. Course title: Polymer Science and Technology Approx. 3-4 weeks study time (128 pp of text plus some 50 pp of work assignments) Source: ACS (**) (P)	Stainless Steel: Specific properties of 3-classes of stainless steels (one of a series) (B) 40 min Snd Col Source: RSC (*) (FL) Stainless Steel: Care and Maintenance (one of a series) (B) 27 min Snd Col Source: RSC (*) (FL) Story of Stainless Steel (B) 27 min Snd Col Source: MTPS (*) (FL) Stress Corrosion in Stainless Steel (B) 13 min Snd Col Source: OSU (**) (R) Zinc Controls Corrosion (B,C) 38 min Snd Col Source: MTPS (*) (FL) Cathodic Protection with Galvanic Anodes (C) 17 min Snd Col Source: Dow (*) (FL) Corrosion in Action: (C) Series of three films 1. Nature of Corrosion 20 min 2. Corrosion Currents 26 min 3. Passivity 17 min Snd Col Source: Rothacker (*) (FL) Stress Corrosion in Magnesium Base Alloys (C) 18 min Snd Col Source: OSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Corrosion (E) 14 Slds No tape Col Source: SPE (**) (FL) Heat Sealing of Plastic Sheet Material (E) 28 Slds No tape Col Source: SPE (*) (FL) Solubility Parameters (E) 31 Slds No tape Source: SPE (**) (FL) Weathering of Plastics (E) 20 Slds No tape Source: SPE (*) (FL)		

SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
The Fundamentals of Plastics (E) (A programmed technical mini-course) Approx. one week's study, 144 pp Source: ASM (*) (P)	The Working of Magnesium (C) 20 min Snd Col Source: Dow (**) (FL)	
	Physical Chemistry of Polymers (E) 22 min Snd Col Source: BTL (**) (FL)	
	Polysulfide Base Industrial Sealants (E) 14 min Snd Col Source: Thiokol (*) (FL)	
	Polysulfides for Industry (E) 18 min Snd Col Source: Thiokol (*) (FL)	
	Report on Du Pont Elastomers (E) 29 min Snd Col Source: DDC (*) (FL)	
	Rubber by Design (E) 27 min Snd Col Source: SFL (*) (FL)	

SUBJECT AREA 32 - PROPERTIES: NUCLEAR (RADIATION EFFECTS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Industrial Applications of Radioisotopes (A) 57 min Snd Col Source: AEC (*) (FL) Nuclear Radiations - Uses in Industry (A) 15 min Snd B/W Source: PSU (*) (R) Nuclear Reactor (A) 9 min Snd B/W Source: PSU (**) (R) Research into Controlled Fusion (A) 55 min Snd B/W Source: PSU (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
The Development of Materials Science-Bubbles and Bettle Shells (Section of Open University Course) (A) 20 min tape only Source: H&R (*) (P)		

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SUBJECT AREA 33 - PROPERTIES: BIOLOGICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Metal Implants for Orthopedic and Dental Surgery (B,J) 55 page report, 47 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P) Ceramics for Prosthetic Applications (D,J) 30 page report, 6 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P)	Laser Safety (A) 19 min Snd Col Source: PSU (*) (R) Ceramics and Metals in Medical Prosthetics (B,C,D,J) 12 min Snd Col Source: MCIC (*) (RP) Artificial Gill (E,J) 13 min Sil Col Source: GE (*) (FL) Initial Events of Blood Contact with Foreign Materials (J) 20 min Sil Col Source: Calspan (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Polymers (II): (E) Macromolecules in Living Matter 15 Slds 25 min tape Source: Ruoff & PC (**) (P)		

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SUBJECT AREA 34 - PROPERTIES: RHEOLOGICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Rheological Behavior of Fluids (A) 22 min Snd B/W Source: EBEC (**) (R) Temperature and Matter (A) 15 min Snd Col Source: PSU (*) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
How Wood Dries (H) 30 min tape 76 Slds Source: SFOSU (*) (RP)		
Penetration of Liquids into Wood (H) 20 min tape 80 Slds Source: SFOSU (*) (RP)		
Pressure Wood-Preserving Processes (H) 24 min tape 119 Slds Source: SFOSU (*) (RP)		

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Car Body (B,E) (Section of Open University Course) Approx. 6 hr module, 136 pp Source: H&R (*) (P) Guidelines for Selection of Marine Materials (B,C) Research review module, 40 pp Source: INCO (**) (F) Material Selection and Casting Problems of a High-Vacuum Coupling (B) (Case Study) 49 pp, Order No. ECO 59 (From Engineering Case Library) Source: ECP (**) (P) Plastics - Their Use in Manufacturing (E) Course consists of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on ma materials Approx 10 weeks of study Source: SME (**) (P)	Choosing a Material (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) Fighting Fire with Science I & II (2 separate films) (A) 30 min (ea.) Snd Col Source: KLEIN (*) (FL) Flexibility Underground (A) 25 min Snd Col Source: Armco (*) (FL) High Temperature Materials HQ4 (A) 12 min Snd Col Source: NASA (**) (FL) Materials - Key to Progress (A) 17 min Snd Col Source: USAF (*) (FL) Pioneering for Tomorrow (A) 28 1/2 min Snd B/W Source: DA (*) (FL) Story of the Modern Storage Battery (A) 27 min Snd Col Source: ASF, BM (*) (FL) The Car Body: From Wood to Steel (B,H) (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*) Casteel - "Engineering Flexibility" (B) 30 min Snd Col Source: SFS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
New Materials for Spare Parts (A) AT only No time given Source: ACS (*) (P) Waste Materials (Section of Open University Course) (A) 20 min tape only Source: H&R (*) (P)		Selection of Materials (A lab experiment) (A) Objective: To study the factors that enter into the selection of materials in design and to become familiar with the reference sources available in the library. One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F) Plastics - Their Use in Manufacturing (E) Course consisting of: 8 Packets of hands on material 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SME (**) (P)

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Cast Iron - Biography of a Metal (B) 27 min Snd Col Source: BM (*) (FL)	
	Drama of Steel (B) 34 min Snd Col Source: BM (*) (FL)	
	Giant Step (B) 12 min Snd Col Source: WEC (*) (FL)	
	Hot Dip Galvanizing After Fabrication (B) 12 min Snd Col Source: AHDGA (*) (FL)	
	Men, Steel and Earthquakes (B) 28 min Snd Col Source: AISC (*) (FL)	
	Solving Metal Joining Problems through Brazing (B,C) 17 min Snd Col Source: PSU (**) (R)	
	These Men Know the Steel Business (B) 20 min Snd Col Source: CTC (*) (FL)	
	Control (C) 23 min Snd Col Source: FSI (**) (FL)	
	Extraordinary World of Zinc (C) 27 min Snd Col Source: ASF, BM, ZII (*) (FL)	

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Time for Tin (C) 30 min Snd Col Source: MTPS (*) (FL) Engineering with Glass (D,G) 28 min Snd Col Source: ASF (*) (FL) Fahrenheit 3300 (D) 28 min Snd Col Source: BM (*) (FL) Milk Bottles, A Choice of Containers (Section of Open University Course) (D,G,H) 25 min Snd Col Source: H&R (P) AS (R) (*) Case Study: Designing in Plastics (From Open University Course The Man-Made World) (E) 25 min Snd B/W Source: H&R (P) AS (R) (*) That's Not Wood, Lady (E) 15 1/2 min Snd Col Source: SFL (*) (P) The Way it is with Man-Made Fibers (E) 27 min Snd Col Source: DDC (*) (FL) Forever Living Forests (H) 25 1/2 min Snd Col Source: ASF, CRA (*) (FL) Composites (From Open University Course The Man-Made World (I) 25 min Snd B/W Source: H&R (P) AS (R) (*)	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Materials (A) Text from Open University Course: The Man-Made World 36 pp Approx. 1 hr class study Source: H&R (*) (P) Structures and Microstructures (A) Text from Open University Course: The Man-Made World 40 pp Approx 1 hr class study Source: H&R (*) (P) Application and Design of Ductile Iron Drawing and Forming Dies, The (B,C) Research review module, 8 pp Source: INCO (**) (F) Car Body (B,E) (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P) Development of a Cast Monoform Turbine Wheel, The (B) (Case Study) 30 pp, Order No. ECL 183 (From Engineering Case Library) Source: ECP (**) (P) Development of a New Drill Steel (B) (Case Study) 20 pp, Order No. ECL 94 (From Engineering Case Library) Source: ECP (*) (P) Fracture of a Marine Gear Rim (B) (Case Study) 31 pp, Order No. ECL 80 (From Engineering Case Library) Source: ECP (*) (P)	The Car Body: Materials and Design (A) (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*) Fighting Fire with Science I & II (2 separate films) (A) 30 min (ea) Snd Col Source: Klein (*) (FL) Flexibility Underground (A) 25 min Snd Col Source: Armco (*) (FL) High Temperature Materials HQ4 (A) 12 min Snd Col Source: NASA (**) (FL) Making a Microscope (A) (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*) Pioneering for Tomorrow (A) 28 1/2 min Snd B/W Source: DA (*) (FL) The Car Body: From Wood to Steel (B,H) (Section of Open University Course) 25 min Snd Col Source: H&R (*) (P) Casteel - "Engineering Flexibility" (B) 30 min Snd Col Source: SFS (*) (FL) Cast Iron - Biography of a Metal (B) 27 min Snd Col Source: BM (*) (FL)	

MEDIA

SLIDE/TAPE

New Materials for Spare Parts (A)

AT only
No time given
Source: ACS
(*) (P)

Properties and Relevance of Materials (A)

29 Slds 40 min tape
Source: Ruoff & PC
(*) (P)

Strength in Shape--Through Steel Casting Design (B)

FS Col
11 min Snd/disc
Source: SFS
(*) (FL)

Fiberglass Reinforced Plastics (D,E,I)

38 Slds No tape Col
Source: SPE
(**) (FL)

The Designer's Knowledge of Polymers (Section of Open University Course) (E)

20 min tape only
Source: H&R
(*) (P)

Foam Construction (E)

36 Slds No tape Col
Source: SPE
(*) (FL)

Foams in Packaging (E)

27 Slds No tape Col
Source: SPE
(*) (FL)

Polysulfide Elastomers (E)

10 Slds No tape
Source: SPE
(**) (FL)

Rubber Elastomers (E)

29 Slds No tape
Source: SPE
(*) (FL)

VIDEO TAPE

Introduction to Engineering Materials (A Course) (A)

23 VT's each 1 hour Snd B/W
3/4" Cassette
Source: GSI
(*) (RP)

Metric System (A)
Part 1-Metric Orientation 45 min
Part 2-Metric Conversion 38 min
Part 3-Understanding SI Units 30 min
Part 4-Designing for Metric Manufacturing 45 min
Part 5-Planning and Implementation 48 min

5 VT's Snd Col
3/4" Cassette
Source: SME
(*) (RP)

Strength of Materials (A Course for Engineers) (A)

22 VT's each 1 hour Snd B/W
3/4" Cassette
149 page study book
Source: GSI
(*) (RP)

Plastics (E)

30 min Snd Col
3/4" Cassette
Source: SME
(*) (RP)

OTHER

Selection of Materials (A lab experiment) (A)

Objective: To study the factors that enter into the selection of materials in design and to become familiar with the reference sources available in the library.

One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author
Source: JR
(*) (F)

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Material-Selection and Casting Problems of a High-Vacuum Coupling (B) (Case Study) 49 pp, Order No. ECL 59 (From Engineering Case Library) Source: ECP (**) (P)	Drama of Steel (B) 34 min Snd Col Source: BH (*) (FL)	
Pickle Pasteurizer Shaft Failure (B) (Case Study) 12 pp, Order No. ECL 152 (From Engineering Case Library) Source: ECP (*) (P)	Giant Step (B) 12 min Snd Col Source: WEC (*) (FL)	
Problem of the Perverse Pinion (B) (Case Study) 18 pp, Order No. ECL 135 (From Engineering Case Library) Source: ECP (*) (P)	Case Studies: Plastic & Steel (B,E) (From Open University Course The Man-Made World) 25 min Snd B/W Source: H&R (P) AS (R) (*)	
Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study) 35 pp, Order No. ECL 72 (From Engineering Case Library) Source: ECP (*) (P)	Men, Steel and Earthquakes (B) 28 min Snd Col Source: AISC (*) (FL)	
Milk Bottle (D,E,G) (Section of Open University Course) Approx 6 hr module, 80 pp Source: H&P (*) (P)	Paths of Steel (B) 26 min Snd Col Source: USS (*) (FL)	
The Flippin' Motorbike (E) (Case Study) 11 pp, Order No. ECL 148 (From Engineering Case Library) Source: ECP (*) (P)	Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL)	
	Solving Metal Joining Problems through Brazing (B,C) 17 min Snd Col Source: PSU (**) (R)	
	Stainless Steel: Stainless Steel Tailored to the Job (one of a series) (B) 40 min Snd Col Source: RSC (*) (FL)	
	These Men Know the Steel Business (B) 20 min Snd Col Source: CTC (*) (FL)	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Plastic Pipe Saddle Design (E) (Case Study) 43 pp, Order No. ECL 126 (From Engineering Case Library) Source: ECP (*) (P)	Trip Steel (B) 11 min Snd Col Source: AEC (**) (FL)	
Spontaneous Fracture (E) (Case Study) 18 pp, Order No. ECL 169 (From Engineering Case Library) Source: ECP (*) (P)	Aluminum (C) 28 min Snd Col Source: MTPS (*) (FL)	
	Aluminum: Metal of Many Faces (C) 20 min Snd Col Source: BM (*) (FL)	
	Aluminum on the March (C) 28 min Snd Col Source: RMC (*) (FL)	
	Chemistry of Aluminum (C) 16 min Snd Col Source: RMC (*) (FL)	
	Copper! (C) 37 min Snd Col Source: Assoc. Films (*) (FL)	
	Copper Mining in Zambia (C) 25 min Snd Col Source: AMC (*) (FL)	
	Copper - Mining, Smelting, and Refining (C) 35 min Snd Col Source: MSU (*) (R)	
	Copper - Oldest Modern Metal (C) 27 min Snd Col Source: BM (*) (FL)	
	Extraordinary World of Zinc (C) 27 min Snd Col Source: ASF, BM, ZII (*) (FL)	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Superconducting Magnets (C) 12 1/2 min Snd Col Source: AEC (**) (FL) Engineering with Glass (D,G) 28 min Snd Col Source: ASF (*) (FL) Fahrenheit 3300 (D) 28 min Snd Col Source: BM (*) (FL) Futures in Concrete (D) 14 min Snd Col Source: ICC (*) (FL) Milk Bottles, A Choice of Containers (Section of Open University Course) (D,G,H) 25 min Snd Col Source: H&R (P) AS (R) (*) Case Study: Designing in Plastics (From Open University Course The Man-Made World) (E) 25 min Snd B/W Source: H&R (P) AS (R) (*) Origin and Synthesis of Plastics Materials (E,I) 16 min Snd B/W Source: PSU (**) (R) Plastics: Industrial Processes and Products (E) 24 min Snd Col Source: PSU (**) (R) Polysulfide Base Industrial Sealants (E) 14 min Snd Col Source: Thiokol (*) (FL)	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

	MEDIA	
PRINT	16 mm FILM	SUPER 8 FILM
	Polysulfides for Industry (E) 18 min Snd Col Source: Thiokol (*) (FL) Rubber by Design (E) 27 min Snd Col Source: SFL (*) (FL) That's Not Wood, Lady (E) 15 1/2 min Snd Col Source: SFL (*) (P) Composites (From Open University Course The Man-Made World (I) 25 min Snd B/W Source: H&R (P) AS (R) (*) Looking at Materials #2: Composites (I) 30 min Snd B/W Source: PSU (**) (R)	

SUBJECT AREA 37 - APPLICATIONS: FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Materials (A) Text from Open University Course: The Man-Made World 36 pp Approx. 1 hr class study Source: H&R (*) (P) Structures and Microstructures (A) Text from Open University Course: The Man-Made World 40 pp Approx. 1 hr class study Source: H&R (*) (P) Brittle Fracture and Structural Failure of Liberty Ships During WW II (B) (Case Study) 57 pp. Order No. ECL 1007 (From Engineering Case Library) Source: ECP (*) (P) Chemistry of Macromolecules (E) One of 3 modules in an ACS Interactive Course designed primarily for continuing education. Course title: Polymer Science and Technology Approx. 3-4 week's study time (128 pp of text plus some 50 pp of work assignments) Source: ACS (**) (P)	Properties of Materials (A) Series of six films 1. Loads on Structures 2. Behavior of Structural Materials 3. Tensile and Compressive Structures 4. Beams and Frames 5. Grids and Plates 6. Membrances and Shells 20 min (ea.) Snd Col Source: McGraw Hill (*) (P) Strength of Materials Laboratory (A) Series of ten films 1. Deformations and Strains 2. Loads and Stresses 3. Tension Test, Part I 4. Tension Test, Part II 5. Compression and Buckling 6. Bending 7. Torsion 8. Hardness and Impact Tests 9. Creep 10. Fatigue 10 - 15 min Snd Col Source: McGraw Hill (*) (P) A World of Structures (A) 20 min Snd Col Source: McGraw Hill (*) (R) Advanced Technology in Specialty Steel (B) 14 min Snd Col Source: UCC (**) (FL) Case Studies: Plastic & Steel (B,E) (From Open University Course The Man-Made World) 25 min Snd B/W Source: H&R (P) AS (R) (*) Men, Steel and Earthquakes (B) 28 min Snd Col Source: AISC (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Nature and Structure of Materials (A) 35 Slds 50 min tape Source: Ruoff & PC (*) (P) Properties and Relevance of Materials (A) 29 Slds 40 min tape Source: Ruoff & PC (*) (P) Fiberglass Reinforced Plastics (D,E,I) 38 Slds No tape Col Source: SPE (**) (FL) A Breakdown in Plastics (E) AT only No time given Source: ACS (*) (P) New Dimensions for Polymers (E) AT only No time given Source: ACS (*) (P)	Basic Strength and Mechanics of Materials for Draftsmen and Designers (A Course) (A) 20 VT's each 1 hour in length 3/4" Cassette Snd B/W 111 page study book Source: GSI (*) (RP) Mechanical Behavior of Solids (A Course) (A) 24 VT's each 50 min Snd B/W 3/4" Cassette & 2" Quad Source: UIUC (*) (P) Structure-Sensitive Properties (Lesson 2) Introduction to Materials Science (set of 16 VT's) (B,C) Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	

SUBJECT AREA 37 - APPLICATIONS: FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Paths of Steel (B) 26 min Snd Col Source: USS (*) (FL)	
	Profiles of Steel (B) 26 min Snd Col Source: MTPS (*) (FL)	
	Aluminum (C) 28 min Snd Col Source: MTPS (*) (FL)	
	Aluminum: Metal of Many Faces (C) 20 min Snd Col Source: BM (*) (FL)	
	Aluminum on the March (C) 28 min Snd Col Source: RMC (*) (FL)	
	Chemistry of Aluminum (C) 16 min Snd Col Source: RMC (*) (FL)	
	Copper! (C) 37 min Snd Col Source: Assoc. Films (*) (FL)	
	Futures in Concrete (D) 14 min Snd Col Source: ICC (*) (FL)	
	Leveling Warped Concrete Pavement (D) 7 min Snd Col Source: NDHD (*) (FL)	
	Forever Living Forests (H) 25 1/2 min Snd Col Source: ASF, CRA (*) (FL)	

SUBJECT AREA 37 - APPLICATIONS: FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Looking at Materials: #2: Composites (I) 30 min Snd B/W Source: PSU (**) (R)	

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SUBJECT AREA 38 - APPLICATIONS: FUNCTIONS (ELECTRICAL, MAGNETIC, OPTICAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Platinum - The Metal, Its Properties and Applications (C) Research review module, 28 pp Source: INCO (**) (F) Failure of a Rotating Mirror (D,G) (Case Study) 28 pp, Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P) Solar Cells (F) (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)	Natural Gas Fuel Cell (A) 20 min Snd Col Source: BUG (*) (FL) Silicon and Its Compounds (A) 14 min Snd Col Source: PSU (**) (R) Story of the Modern Storage Battery (A) 27 min Snd Col Source: ASF, BM (*) (FL) Copper - Mining and Smelting (C) 10 min Snd Col Source: BF (*) (R) Copper Network (C) 27 min Snd Col Source: BM (*) (FL) Copper - Oldest Modern Metal (C) 27 min Snd Col Source: BM (*) (FL) Looking at Materials: #5: Ceramics (D) 30 min Snd B/W Source: PSU (**) (R) Brattain on Semiconductor Physics (F) 30 min Snd B/W Source: BTL (**) (FL) Breakthrough (F) 9 min Snd Col Source: WEC (*) (FL) Genesis of the Transistor (F) 15 min Snd Col Source: BTL (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Liquid Crystals: A Bright Promise (K) AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 38 - APPLICATIONS: FUNCTIONS (ELECTRICAL, MAGNETIC, OPTICAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	I. C. A Shrinking World (F) 16 min Snd Col Source: BTL (*) (FL)	
	Integrated Electronics-A New Art (F) 16 min Snd Col Source: BTL (*) (FL)	
	An Interview with the Transistor's Inventors (F) 14 min Snd Col Source: BTL (*) (FL)	
	Micro (F) 14 min Snd Col Source: MTPS, WEC (*) (FL)	
	Modern Transistor Fabrication (F) 35 min Snd Col Source: BTL (*) (FL)	
	Principles of the Transistor (F) 21 min Snd B/W Source: PSU (*) (R)	
	Printed Circuit Story (F) 16 min Snd Col Source: PSU (*) (R)	
	Solar Cells (Section of Open University Course) (F) 25 min Snd Col Source: H&R (P) AS (R) (*)	
	Transistor (F) 27 min Snd Col Source: BTL (*) (FL)	
	The Transistor (F) 9 min Snd B/W Source: BTL (*) (FL)	

SUBJECT AREA 39 - APPLICATIONS: FUNCTIONS (SURFACE: FRICTION, WEAR, CORROSION)

MEDIA

PRINT

Corrosion Testing of Electrodeposited Coatings (B,C)

Research review module, 8 pp
Source: INCO
(**) (F)

Guidelines for Selection of Marine Materials (B,C)

Research review module, 40 pp
Source: INCO
(**) (F)

Heat-resistant Castings, Corrosion-resistant Castings Their Engineering Properties and Applications (B,C)

Research review module, 60 pp
Source: INCO
(**) (F)

Materials Degradation (B,C)
(Volume 5 of a five-part course on Materials Technology)

Workbook and VT's
5 sessions, approx. 1 week's study
Source: SL
(*) (SA)

Metals and Corrosion (B,C)

Research review module, 12 pp
Source: INCO
(**) (F)

Ocean Engineering Hardware Requires Copper-Nickel Alloys (B,C)

Research review module, 36 pp
Source: INCO
(**) (F)

Problem of the Perverse Pinion (B) (Case Study)

18 pp, Order No. ECL 135
(From Engineering Case Library)
Source: ECP
(*) (P)

Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid (B,C)

Research review module, 44 pp
Source: INCO
(**) (F)

16 mm FILM

Frontiers of Friction (B,C)

18 min Snd Col
Source: Shell
(*) (FL)

Grease, The Magic Film (B,C)

26 min Snd Col
Source: NLGI
(*) (FL)

Hot Dip Galvanizing After Fabrication (B)

12 min Snd Col
Source: AHDGA
(*) (FL)

No Trouble At All (B)

32 min Snd Col
Source: TC
(*) (FL)

Stainless Steel: Stainless Steel Tailored to the Job (one of a series) (B)

40 min Snd Col
Source: RSC
(*) (FL)

Stainless Steel: Care and Maintenance (one of a series) (B)

27 min Snd Col
Source: RSC
(*) (FL)

Story of Stainless Steel (B)

27 min Snd Col
Source: MTPS
(*) (FL)

Stress Corrosion in Stainless Steel (B)

13 min Snd Col
Source: OSU
(**) (R)

Turning of High Speed Steel (B)

7 min Sil B/W
Source: PSU-EC
(**) (R)

Zinc Controls Corrosion (B,C)

38 min Snd Col
Source: MTPS
(*) (FL)

SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
Corrosion Series (A) 17 Slds No tape Source: ASM (**) (P)	Materials Degradation (Volume 5 of a five-part course on Materials Technology) (B,C) VT's and Workbook 5 sessions, approx. 1 week's study Source: SL (*) (SA)	
Electro Chemical Properties (A) Corrosion and Protection Against Corrosion 22 Slds 46 min tape Source: Ruoff (*) (P)	Corrosion in Hamilton - A TV Field Trip (B,C) Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
Corrosion (E) 14 Slds No tape Col Source: SPE (**) (FL)		
Weathering of Plastics (E) 20 Slds No tape Source: SPE (*) (FL)		

SUBJECT AREA 39 - APPLICATIONS: FUNCTIONS (SURFACE: FRICTION, WEAR, CORROSION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	Corrosion in Action: (C) Series of three films 1. Nature of Corrosion 20 min 2. Corrosion Currents 26 min 3. Passivity 17 min Snd Col Source: Rothacker (*) (FL) Stress Corrosion in Magnesium Base Alloys (C) 18 min Snd Col Source: OSU (**) (R) Carbon and Its Compounds (D) 10 min Snd B/W Source: PSU (*) (R) For Every Wheel That Rolls (E) 26 min Snd Col Source: ASF (*) (FL)	

SUBJECT AREA 40 - APPLICATIONS: FUNCTIONS (OTHER: THERMAL, NUCLEAR, BIOLOGICAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
Metal Implants for Orthopedic and Dental Surgery (B,J) 55 page report, 47 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P) Platinum - The Metal, Its Properties and Applications (C) Research review module, 28 pp Source: INCO (**) (F) Ceramics for Prosthetic Applications (D,J) 30 page report, 6 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P)	Nuclear Radiations - Uses in Industry (A) 15 min Snd B/W Source: PSU (*) (R) Nuclear Reactor (A) 9 min Snd Col Source: PSU (**) (R) Research into Controlled Fusion (A) 55 min Snd B/W Source: PSU (**) (R) Ceramics and Metals in Medical Prosthetics (B,C,D,J) 12 min Snd Col Source: MCIC (*) (RP) Carbon and Its Compounds (D) 10 min Snd B/W Source: PSU (*) (R) Heat and Its Control (D) 20 min Snd Col Source: BM (*) (FL) A Problem of Shock (D,G) 9 min Snd Col Source: ASM (*) (R) Artificial Gill (E,J) 13 min Sil Col Source: GE (*) (FL) Fire Retardant Treated Wood (H) 20 min Snd Col Source: AWPI (*) (FL) Initial Events of Blood Contact with Foreign Materials (J) 20 min Sil Col Source: Calspan (*) (FL) Author: Dr. Robert Dutton	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
The Designer's Knowledge of Polymers (Section of Open University Course) (E) 20 min tape only Source: H&R (*) (P) Heat Sealing of Plastic Sheet Material (E) 28 Slds No tape Col Source: SPE (*) (FL)	Polymer Science (E) Herman Mark presents the Fundamentals of Polymer Science 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	

NAMES AND ADDRESSES OF SOURCES

AAAS
American Association for the Advancement of Science
1515 Massachusetts Avenue, N.W.
Washington, DC 20005

ACA
-Aluminum Company of America
1246 Alcoa Building
Pittsburgh, PA 15219

ACC
Appleton-Century-Crofts
440 Park Avenue, South
New York, NY 10016

ACCC
Advisory Council on College Chemistry
701 Welch Road
Palo Alto, CA 94034

ACS
American Chemical Society
Educational Activities Department
1155 Sixteenth Street, N.W.
Washington, DC 20036

AEC
(Formerly Atomic Energy Commission
Now Energy Research and Development Administration
ERDA-TIC Film Library
P.O. Box 62
Oak Ridge, TN 37830

AGA
American Gas Association
Educational Services
1515 Wilson Boulevard
Arlington, VA 22209

AHDGA
American Hot Dip Galvanizers Assoc., Inc.
Suite 504
1000 Vermont Avenue, N.W.
Washington, DC 20005

AIAA
American Institute of Aeronautics and Astronautics
1290 Avenue of the Americas
New York, NY 10019

AIM
Association Instructional Materials
600 Madison Avenue
New York, NY 10022

AIS
American Iron and Steel Institute
150 East 42nd Street
New York, NY 10017

AISC
American Instktute of Steel Construction, Inc.
Department of Educational Services
101 Park Avenue
New York, NY 10017

AJP/AIP
American Journal of Physics
American Institute of Physics
335 East 45th Street
New York, NY 10017

ALSC
Allegheny Ludium Steel Corporation
1246 Alcoa Building
Pittsburgh, PA 15219

AMC
American Metal Climax, Inc.
1270 Avenue of the Americas
New York, NY 10020

Armco
Armco Steel Corporation
Attn: Librarian, General Office
Film Library
P.O. Box 600
Middletown, OH 45042

AS
Association Sterling
512 Burlington Avenue
La Grange, IL 60525

ASF
Association-Sterling Films
Executive Offices
866 Third Avenue
New York, NY 10022

ASM
American Society for Metals
Career Development Office
Metals Park, OH 44073

Assoc. Films
Association Films
600 Madison Avenue
New York, NY 10022

Atomics Intl.
Atomics International
Division of North American Aviation
P.O. Box 309
Canoga Park, CA 91304

AWPI
American Wood Preservers Institute
Attn: Visual Aids
1651 Old Meadow Road
McLean, VA 22101

Beckman
2500 Harbor Boulevard
Fullerton, CA 92634

BF
Britannica Films
Public Relations Department
1150 Wilmett Avenue
Wilmett, IL 60091

BFA
Bailey Film Associates
11559 Santa Monica Boulevard
Los Angeles, CA 90025

BSC
Bethlehem Steel Corporation
See Addresses from Modern Talking
Picture Service

BTL
Bell Telephone Laboratories
Film Library
Murray Hill, NJ 07971

BUG
Brooklyn Union Gas
Public Relations and Advertising Department
195 Montague Street
Brooklyn, NY 11201

Bureau of Mines
Bureau of Mines
United States Department of the Interior
Motion Pictures
4800 Forbes Avenue
Pittsburgh, PA 15213

B&W
Babcock & Wilcox
Tubular Products Division
P.O. Box 401
Beaver Falls, PA 15010

Calspan
(Technical Library)
Calspan Corporation
P.O. Box 235
Buffalo, NY 14221

Alternate Source: Heart & Lung Association
Bethesda, MD

Chase
Chase Brass & Copper Company
Advertising Department
20600 Chagrin Boulevard
Cleveland, OH 44122

CIC
Cobalt Information Center
Battelle Memorial Institute
505 King Avenue
Columbus, OH 43201

CL
Professor Claude Lupis
Metallurgy and Materials Science Dept.
Carnegie-Mellon University
Pittsburgh, PA 15213

Coe
Coe Advertising
7 Hooper Street
Utica, NY 13501

CRA
California Redwood Association
617 Montgomery Street
San Francisco, CA 94111

CSC
Communication Skills Corporation
P.O. Box 684
Fairfield, CT 06430

CTC
Carpenter Technology Corporation
Box 662
Reading, PA 19603

DA
Department of the Army
See Address for your Area

First United States Army
Attn: Audio-Visual Support Center
Fort George C. Mead, MD 20755

Fifth United States Army
Attn: Audio-Visual Support Center
Fort Sam Houston, TX 78234

Sixth United States Army
Attn: Audio-Visual Support Center
Presidio of San Francisco
San Francisco, CA 94129

Military District of Washington
Attn: Audio-Visual Support Center
Washington, DC 20315

DDC
E. I. duPont de Nemours and Co., Inc.
Motion Picture Section
Advertising Department
1007 Market Street
Wilmington, DE 19898

Dow
Dow Chemical Company
Film Library
Audio-Visual Center
2030 Building
Midland, MI 48640

EBEC
Encyclopedia Britannica Education
425 North Michigan Avenue
Chicago, IL 60611

ECP
Engineering Case Program
Room 506
Stanford University
Stanford, CA 94305

EDC
Education Development Center
39 Chapel Street
Newton, MA 02160

EFL
Ealing Films
The Ealing Corporation
2225 Massachusetts Avenue
Cambridge, MA 02140

EWAC
Eutectic Welding Alloy Company
40-40 172nd Street
Flushing, NY 11358

FSC
Fisher Scientific Company
Films, Advertising Department
711 Forbes Avenue
Pittsburgh, PA 15219

FSI
Firth Seerling, Inc.
3113 Forbes Avenue
Pittsburgh, PA 15230

GE
General Electric Company
Research & Development Center
Editorial and Audiovisual Unit
P.O. Box 8
Schenectady, NY 12301

GSI
Genesys Systems, Inc.
1121 East Meadow Drive
Palo Alto, CA 94303

Hacker
Hacker Instruments, Inc.
Box 646
West Caldwell, NJ 07006

HJM
Professor H. J. McQueen
Engineering College
Concordia University
Montreal, Canada

Hoeg
Hoeganas Corporation
Riverton, NJ 08077

HPMC
Hamilton Precision Metals Company
Precision Metals Division
Attn: Mrs. Dee Charles
Lancaster, PA 17604

H&R
Harper & Row
10 East 53rd Street
New York, NY 10022

Huley
J. Huley Associates, Inc.
P.O. Box 910
Boca Raton, FL 33432

IBM
International Business Machine Corp.
See Address for your Area

412 Peachtree Street, N.W.
Atlanta, GA 30308

1411 Slocum Street
Dallas, TX 75207

1687 Elmhurst Road
Elk Grove Village, IL 60007

1145 North McCadden Place
Los Angeles, CA 90038

2323 New Hyde Park Road
New Hyde Park, NY 11040

ICC
Ideal Cement Company
Public Relations Department
821 Seventeenth Street
Denver, CO 80202

INCO
The International Nickel Co., Inc.
67 Wall Street
New York, NY 10005

ISC
Inland Steel Company
30 West Monroe Street
Chicago, IL 60603

IWF
Institut fur Wissenschaftlichen Film
Nonnensteig 72
34 Gottingen
Germany

J&L
Jones & Laughlin Steel Corporation
No. 3 Gateway Center
Pittsburgh, PA 15230

JPL
Jet Propulsion Laboratory
Photographic Services
Film Library
4800 Oak Drive
Pasadena, CA 91103

JR
Professor John E. Ritter, Jr.
Mechanical and Aerospace Engineering Dept.
University of Massachusetts
Amherst, MA 01002

Klein
Walter J. Klein Company
Distribution Director
6301 Carmel Road
Charlotte, NC 28211

LBF
LB Films
3435 Grant Avenue
Corvallis, OR 97330

LIA
Lead Industries Association, Inc.
292 Madison Avenue
New York, NY 10017

L&N
Leeds and Northrup Company
4901 Stenton Avenue
Philadelphia, PA 19144

LONG
Longmans Green
Pinnacles, Harlow
Essex, England

MBI
Professor M. B. Ives
McMaster University
Hamilton, Ontario, Canada

McGraw-Hill
McGraw-Hill Text Films
1221 Avenue of the Americas
New York, NY 10020

MCIC
Metals and Ceramic Information
P.O. Box 8128
Columbus, OH 43201

MLA
Modern Learning Aids
1212 Avenue of the Americas
New York, NY 10036

MLS
Professor Marion L. Shepard
Department of Mechanical Engineering
and Material Science
Duke University
Durham, NC 27706

M&R
Dept. of Energy, Mines & Resources (Canada)
c/o Dr. E. Smith
Physical Metallurgy Department
Ottawa, Canada

MRB
Malaysian Rubber Bureau
From Modern Talking Picture Service
Attn: Client Services
2323 New Hyde Park Road
New York, NY 11040

MRL
Materials Research Laboratory
Room 102
The Pennsylvania State University
University Park, PA 16802

MSU
Michigan State University
Visual Aids Bureau
East Lansing, MI 48823

MTPS
Modern Talking Picture Service
See Address for your Area

412 W. Peachtree Street, N.W.
Atlanta, GA 30308

230 Boylston Street, Chestnut Hill
Boston, MA 02167

122 West Chippewa Street
Buffalo, NY 14202

c/o Pratt Educational Media, Inc.
200 Third Avenue, S.W.
Cedar Rapids, IA 52404

503 North College Street
Charlotte, NC 28202

1687 Elmhurst Road
Elk Grove Village, Illinois
Chicago, IL 60007

9 Garfield Place
Cincinnati, OH 45202

c/o Film Programs, Inc.
2238 Euclid Avenue
Cleveland, OH 44115

1411 Slocum Street
Dallas, TX 75207

c/o Cromar's Modern Films
1200 Stout Street
Denver, CO 80204

15921 W. 8 Mile Road
Detroit, MI 48235

MTPS (continued)
c/o J. P. Lilley & Son, Inc.
2009 North Third Street
Harrisburg, PA 17105

c/o Films Services of Hawaii, Ltd.
716 Cooke Street
Honolulu, HI 96813

86 Weldon Parkway
Maryland Heights
St. Louis, MO 63043

c/o Roa's Films
1696 North Astor Street
Milwaukee, WI 53202

9129 Lyndale Avenue South
Minneapolis, MN 55420

1234 Spruce Street
Philadelphia, PA 19107

910 Penn Avenue
Pittsburgh, PA 15222

16 Spear Street
San Francisco, CA 94105

c/o Photo & Sound Company
1205 North 45th Street
Seattle, WA 98103

c/o Modern-Mass Media, Inc.
315 Springfield Avenue
Summit, NJ 07901
Serves NJ and Southern NY

Suite 4, 2000 L Street
Washington, DC 20036

4084 Westheimer Road
Houston, TX 77027

115 East Michigan Street
Indianapolis, IN 46204

1145 N. McCadden Place
Los Angeles, CA 90038

NAC
National Audiovisual Center
National Archives & Records Service
Washington, DC 20409

NASA
National Aeronautics and Space
Administration Research Center
East Coast: 575 Technology Square
Cambridge, MA 02139

West Coast: 4800 Grove Drive
Pasadena, CA 91103

NASA
National Aeronautics and Space Administration
See Address for your Area

NASA Ames Research Center
Public Affairs Office
Moffett Field, CA 94035

NASA Film Library
National Audiovisual Center (GSA)
Washington, DC 20409

NASA George C. Marshall Space Flight Center
Public Affairs Office
Marshall Space Flight Center, AL 35812

NASA Goddard Space Flight Center
Public Affairs Office
Code 202
Greenbelt, MD 20771

NASA John F. Kennedy Space Center
Public Affairs Office
Code PA-EPB
Kennedy Space Center, FL 32899

NASA Langley Research Center
Langley Station
Public Affairs Office
Mail Stop 154
Hampton, VA 23365

NASA Lewis Research Center
Office of Educational Services
2100 Brookpark Road
Cleveland, OH 44135

NASA Lyndon B. Johnson Space Center
Photographic Technical Lab
Audiovisual Office
Code JL-13
Houston, TX 77058

NBS
National Bureau of Standards
Office of Technical Information and
Publications
Washington, DC 20234

NDHD
North Dakota Highway Department
Travel Division
Bismarck, ND 58501

NFBC
National Film Board of Canada
680 Fifth Avenue
New York, NY 10019

NLGI
National Lubricating Grease Institute
4635 Wyandotte Street
Kansas City, MO 64112

OSU
Ohio State University
Film Distribution Supervisor
Department of Photography & Cinema
156 W. 19th Street
Columbus, OH 43210

PC
Packaged Courses
216 Texas Lane
Ithaca, NY 14850

PEI
Phillips Electronic Instruments
Advertising and Sales Promotion
750 South Fulton Avenue
Mount Vernon, NY 10550

Polysar
Polysar, Inc.
1795 West Market Street
Akron, OH 44313

PSU
The Pennsylvania State University
Audio-Visual Services
17 Willard Building
University Park, PA 16802

PSU-EC
The Pennsylvania State University
Audio-Visual Services
Encyclopedia Cinematographica
17 Willard Building
University Park, PA 16802

Purdue
Purdue University
Visual Aids Bureau
Lafayette, IN 47907

RMC
Reynolds Metal Company
Motion Picture Service
P.O. Box 27003
Richmond, VA 23261

RMCS
Royal Military College of Science
Chemistry Branch
Shrivenham, Berks, England

Rothacker
Rothacker, Inc.
241 West 17th Street
New York, NY 10011

RSC
Republic Steel Corp.
224 East 131st Street
Cleveland, OH 44108

Ruoff & PC
Arthur L. Ruoff
Department of Materials Science
and Engineering
Cornell University
Ithaca, NY 14853

Packaged Courses
216 Texas Lane
Ithaca, NY 14850

SETCO
Setco Audio Visual
4400 St. Vincent Avenue
Webster Groves, MO 63119

SET K
N. MacGregor Rugheimer
Department of Physics
Montana State University
Bozeman, MT 59715

A. J. M. Johnson
Department of Physics
Montana State University
Bozeman, MT 59715

SET Q
A. B. Dick Company
5700 West Touhy Avenue
Chicago, IL 60648

Cambosco Scientific Company
342 Western Avenue
Boston, MA 02181

Ealing Films
2225 Massachusetts Avenue
Cambridge, MA 02140

SET R
Bangkok Unesco Pilot Project for
Chemistry Teaching in Asia
P.O. Box 1425
Bangkok, Thailand

Visual Projects
21 Little Browning
Sydenham Rise
London SE23, England

SET S
Crowell, Collier, and MacMillan
866 Third Avenue
New York, NY 10022

Encyclopedia Britannica Education
425 North Michigan Avenue
Chicago, IL 60611

SET U
Potter's Photographic Applications Co.
160 Herricks Road
Mineola, NY 11501

Association Instructional Materials
600 Madison Avenue
New York, NY 10022

SFL
Shell Film Library
1433 Sadler Circle, W. Drive
Indianapolis, IN 46239

SFOSU
School of Forestry
Oregon State University
Corvallis, OR 97331

SFS
Steel Founders' Society of America
Cast Metals Federation Building
20611 Center Ridge Road
Rocky River, OH 44116

Shell
Shell Oil Company
450 North Meridan Street
Indianapolis, IN 46204

SHEPARD
Professor Marion L. Shepard
Department of Mechanical Engineering
and Materials Science
Duke University
Durham, NC 27706

SL
Sandia Laboratories
Motion Picture Production Division
P.O. Box 5800
Albuquerque, NM 87115

SME
Society of Manufacturing Engineers
Video Tape Department, Technical Division
20501 Ford Road
P.O. Box 930
Dearborn, MI 48128

SPE
Society of Plastics Engineers
Education Chairman
2010 Harvey Road
Wilmington, DE 19810

SSCC
Superior Steel Castings Company
Box 539
Benton Harbor, MI 49022

SUTH
Sutherland Educational Films, Inc.
8425 W. Third Street
Los Angeles, CA 90048

TC
The Timken Company
Mr. D. E. Eagon
Advertising Department
1835 Dueber Avenue, S.W.
Canton, OH 44706

THIOKOL
Thiokal Chemical Corporation
Film Library
P.O. Box 27
Bristol, PA 19007

THORNE
Thorne Films, Inc.
1229 University Avenue
Boulder, CO 80302

TI
Texas Instruments Learning Center
P.O. Box 5012, Mail Station 54
Dallas, TX 75222

U of A
University of Akron
Director A-V Services
University of Akron
Akron, OH 44304

U of C
University of California
Extension Media Center
2223 Fulton Street
Berkeley, CA 94720

UCC
Universal Cyclops Company
Specialty Steels Division
650 Washington Road
Pittsburgh, PA 15228

UIUC
University of Illinois at Urbana-Champaign
Contact: Charles J. McIntyre
University of Illinois-
Urbana-Champaign
205 S. Goodwin
Urbana, IL 61801

U of Nev
University of Nevada
Audio-Visual Center
Reno, NV 89507

USAF
Air Force Library Center
8900 South Broadway
St. Louis, MO 63125

USBS
United States Bureau of Standards
Office of Technical Information
Washington, DC 20545

USI
U.S.I. Clearing
6499 West 65th Street
Chicago, IL 60638

USS
United States Steel Company
See Address for your Area

Birmingham Film Center
Box 599
Fairfield, AL 35064
Serves: AL, AR, FL, GA, LA, MS, NC, OK,
SC, TN, TX

Chicago Film Center
208 South LaSalle Street
Chicago, IL 60690
Serves: IL, IN, IA, KS, KY, MI, MN, MO,
NE, ND, SD, WI

New York Film Center
71 Broadway
New York, NY 10006
Serves: CN, ME, MA, NH, NJ, NY, RI, VT

Pittsburgh Film Center
600 Grant Street
Pittsburgh, PA 15230
Serves: DE, DC, MD, OH, PA, VA, WV

San Francisco Film Center
120 Montgomery Street
San Francisco, CA 94106
Serves: AK, AR, CA, CO, HI, ID, MT, NV,
NM, OR, UT, WA, WY

UWEX
University of Wisconsin-Extension
Department of Engineering
432 North Lake Street
Madison, WI 53706

VRE
Mishay Research and Education
67 Lincoln Highway
Malvern, PA 19355

WE
Western Electric
Motion Picture Bureau
195 Broadway - Room 1626
New York, NY 10007

WEC
Westinghouse Electric Corporation
Visual Communications Department
Westinghouse Building, Gateway Center
Pittsburgh, PA 15222

Wiley
John Wiley and Sons, Inc.
605 Third Avenue
New York, NY 10016

Wymann
Wymann Gordon Company
Public Relations Department
105 Madison Street
Worcester, MA 01600

ZII
Zinc Institute, Inc.
292 Madison Avenue
New York, NY 10017

LIST OF MEDIA BY MATERIALS CLASSIFICATION

ALL SOLIDS IN GENERAL (A)

PRINT

Title	Subject Area
Applications of Raman Spectroscopy	11
Architecture of Solids	7
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PRINT

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PRINT

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16 mm FILM

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Super 8 Film Cont.

Title	Subject Area
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SLIDE/TAPE

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PRINT

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16 mm FILM

Title	Subject Area
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Deformation of Glass with Scratching Tools (3 films)	26
Engineering with Glass	26,35,36
Milk Bottles, A Choice of Containers	35,36
PPG: Glass for the Seventies	22,26
Problem of Shock, A	25,40
Tensile and Bending Stress in Glass Fiber Reinforced Synthetics	26

SUPER 8 FILM - None

SLIDE/TAPE

Title	Subject Area
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VIDEO TAPE

Title	Subject Area
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OTHER

Title	Subject Area
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WOOD & PAPER (H)

PRINT - None

16 mm FILM

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SUPER 8 FILM - None

SLIDE/TAPE

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VIDEO TAPE - None

OTHER - None

COMPOSITES (I)

PRINT

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16 mm FILM

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Tensile and Bending Stress in Glass Fiber Reinforced Synthetics	26

SUPER 8 FILM - None

SLIDE/TAPE

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Strengthening Mechanisms (II): Strengthening of Viscous Materials	26

VIDEO TAPE

Title	Subject Area
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OTHER - None

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SLIDE/TAPE - None	
VIDEO TAPE - None	
OTHER - None	

OTHER (K)

Title	Subject Area
PRINT - None	
16 mm FILM - None	
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Title	Subject Area
SLIDE/TAPE	
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VIDEO TAPE - None	
OTHER - None	

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